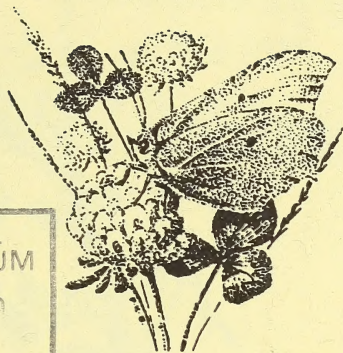


Invertebrate Conservation News



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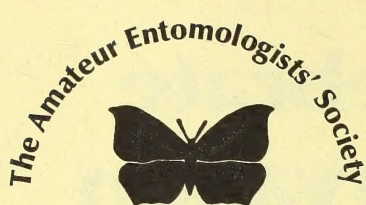
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INVERTEBRATE CONSERVATION NEWS

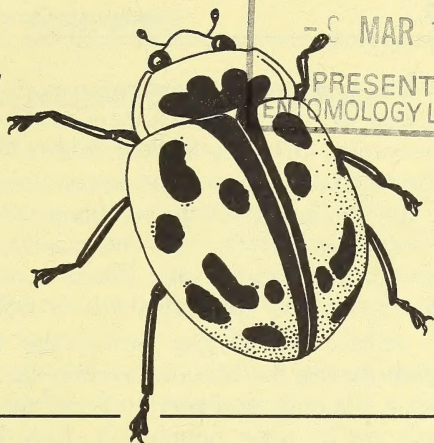
No. 28, February 1999

EDITORIAL

Recent alerts in Britain about an introduced termite species and the potential establishment of an Asian longhorn beetle serve to highlight the dangers of accidentally importing exotic invertebrates into the wild. Although the danger is partly economic, we should also beware of accidentally introducing species to parts of the world where they could disrupt existing ecosystems.

The Gypsy moth (*Lymantria dispar*) is an interesting case, because it is now a quarantine organism in the UK, despite once having been part of the native fauna. It is widespread in Europe and also across a large area of Asia. In some regions its populations locally explode from time to time, leading to larval defoliation of a very wide range of tree and shrub species. Such outbreaks are particularly serious in North America, where the species was accidentally introduced. Its extinction in Britain, before World War I, seems an odd fate for a potential pest. However, the British population probably had no such potential, being mainly confined to the fen country of eastern England, where the larval foodplants were Bog myrtle and Creeping willow. Thus, in Britain, the Gypsy moth was probably a classic example of a species at the edge of its geographic range – with limited genetic diversity and with habitat requirements far more exacting than those of populations closer to the centre of the range.

In view of the recent scare stories, it's quite amusing to wonder whether in other circumstances, the Gypsy moth might have been accorded a Species Recovery Programme and protection from collectors on pain of criminal conviction. The main factors against such glorification seem to be that it became extinct quite a long time ago, and that populations with the economically damaging potential exist in countries as close by as France and Germany.



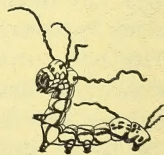


The new twist to the Gypsy moth story, as many readers will know, is that its Asian form has been accidentally carried to various European countries, including the UK, where it has bred in the Woodford area of Greater London over the last couple of years. Whereas the European form has flightless females, this is not the case with the Asian form. The latter may therefore be more able to disperse, although the young larvae can in any case float on silken threads, whereby even the European form has spread widely in North America.

Unlike the Gypsy moth, the longhorn beetle *Anaplophora glabripennis* has no conservation credentials as a native of Britain. Even so, it is a large and very attractive insect, and has been unwittingly kept as a pet by some people who have found specimens straying from the ships or planes in which they had "stowed away". Unlike the termites which seem to be well ensconced at a site in south-west England, and which cannot be legally kept in captivity in the UK without a licence, this longhorn beetle is not a threat to timber in use. However, as explained in this issue of *ICN*, its ability to kill trees of many species – or to render them a hazard to life and limb – presents major problems, some of which could involve the habitats of many other invertebrates.

Small and sombrely coloured bark beetles such as *Ips typographus* – yet another quarantine concern for the UK – may not have much appeal as pets, but pests of coniferous forests they certainly can be. Insect lovers might think that this is just tough luck for foresters. The trouble is that *I. typographus* would probably have to be controlled by rigorous sanitation, which would be inimical to the development of a deadwood fauna. Native British bark beetles cause some damage to standing trees and to piles of logs, but are generally less aggressive and do not invite draconian measures to control them. Even the Great spruce bark beetle (*Dendroctonus micans*), which was introduced and is economically damaging, is benignly kept in check by a biocontrol agent.

The law clearly has a part to play in preventing undesirable importations of species. However, the example of the Gypsy moth may leave one wondering how small might be the legal dividing line between an undesirable alien and a protected species.





NEWS, VIEWS AND GENERAL INFORMATION

Consultation on the UK's Wildlife and Countryside Act

ICN readers with long memories will remember the concern that was expressed in our pages during the debates leading up to the enactment of the UK's Wildlife and Countryside Act in 1981. On the one hand, it was clear that loopholes in the Act would limit its effectiveness in protecting Sites of Special Scientific Interest, while on the other hand there seemed to be quite a strong emphasis on the desirability of criminalising the collection and possession of certain invertebrate species; far beyond its possible benefits, in comparison with the need to conserve habitats.

Nowadays, amidst serious declines in many forms of wildlife, there is broad agreement that the protection of habitats needs to be greatly improved, preferably in ways which favour sustainable land-use instead of confronting a system in which subsidies are paid to support over-intensive forms of agriculture. Aside from the difficulties of reforming the European Common Agricultural Policy, there now seems to be a real prospect for improvement of the law as it affects habitats. However, it is more difficult to decide what kinds of reform, if any, are desirable for the protection of individual species.

Protection of invertebrates under the 1981 Act is implemented mainly through the listing of species in Schedule 5 of the Act. The list is reviewed at five-year intervals, when there are opportunities to add or remove species. In the more recent of these reviews, it has been possible to apply different levels of protection to various species, allowing some scope to limit the inappropriate criminalisation of activities such as the collection and possession of specimens. Even so, there has been considerable debate about the scheduling of certain species, such as Fisher's estuarine moth (*Gortyna borelii*), as explained in ICN 18 and 19).

In order to assess the value of Schedule 5, representatives of several invertebrate societies were invited to submit views for a study commissioned by the Joint Nature Conservation Committee. This included a meeting at the Natural History Museum in London in November 1998. Only time will tell whether the results of the study will be reflected in official policy, but it has been interesting to see that people from a variety of interest groups tend to reach consensus, once they have thought carefully about the fundamental issues. For example, the view that it would be helpful to add numerous invertebrate species to Schedule 5 seems to be held very largely by



people with little or no understanding of invertebrate ecology. Equally, however, there seems to be wide acceptance that some species are so endangered that provision for legal protection should remain for very selective use.

If and when the outcome of the Schedule 5 study is released, we intend to summarise the findings in a future issue of *ICN*, and we hope that the debate will encourage more people to base their opinions on a better appreciation of the biology and ecology of our many invertebrate taxa.

AES Area Representatives Scheme

To be fully effective, conservation must take place at several levels, ranging from international to local. It is at the local level that real on-the-ground conservation takes place, but leadership and the flow of ideas and information from the centre are also important. This is why the conservation work of the AES involves the promotion of its Area Reps Scheme, as well as working on committees and producing publications.

The AES area scheme was something of a pipe dream for many years, until Martin Harvey became the AES Habitat Conservation Officer (HCO). He has devoted the energy and determination that were needed to get the scheme off the ground, and has established a panel of 17 Reps who cover various counties of England and Wales, and also the Irish Republic.

Although the scheme is now well established, there remain difficulties in making it work well in all the areas covered. The best chance of success seems to exist in the several British counties where local invertebrate groups have been formed. In the last issue of *ICN*, for example, we mentioned the founding of the Worcestershire Group. Martin himself has founded a group for Berkshire, the Berkshire Network for Invertebrate Conservation.

One of the main problems is that invertebrate conservation depends so much on unpaid voluntary work, which is under increasing pressure from various factors in today's society. Indeed, Martin has reluctantly decided that he should stand down as the AES HCO and has accordingly sent out a request for someone to take over from him in April, when his term of office will end. So as to send out this request more widely, relevant extracts of it are reproduced below.

"The main responsibility is to keep in touch with the network of Area Reps and to develop this contact in whatever way seems most appropriate in future. The HCO is a member of the AES Conservation Committee (which usually meets no more than twice a year) and, as things stand, is also a member of the AES Council. Council meets four



times a year in London. Expenses are available for those travelling to Society meetings. It is up to the HCO as to what other activities he or she gets involved in; a small number of letters about conservation matters get passed to the HCO each year, and if I can't deal with them myself I can always rely on the expertise of other extremely knowledgeable committee members such as David Lonsdale. The HCO also has the opportunity to become more directly involved in consultation through JCCBI on issue such as legislation to protect insects and other wildlife.

If you can spare any time to help the Society maintain its conservation role please do consider taking on the HCO position, and if you would like to know more, feel free to contact me." (Martin's address is shown in the following list of AES Area Reps.)

List of AES Area Reps

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Geoff Trevis

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Charles Watson (*Area: east Herts and west Essex*)

18 Thorley Park Road, Bishop's Stortford, Hertfordshire CM23 3NQ.

Forest Strategy for England

Political devolution for Wales and Scotland has enabled the British Government to issue separate forest strategies for these parts of the UK. The Forestry Commission, which will continue to be the state forestry organisation throughout Great Britain, was the key player in formulating the strategy for England over the next 5 - 10 years.

Normally, things such as national strategies are frankly boring for a lot of people, even if they have far-reaching consequences. However, it is encouraging that the new strategy for England places a new emphasis on aspects of forestry other than timber production. The main objectives involve rural development, economic regeneration, recreation (including access and tourism) and conservation and the environment. As far as the management of existing forests is concerned, sustainable forestry will become a major aim.

Expansion of England's woodland cover, currently a mere 7% of land areas, will be another major part of the strategy, and will focus on relatively large area, in which the intention is to help reverse some of the previous losses of wildlife-rich semi-natural woodlands.

Butterfly monitoring in Somerset, SW England

The January 1999 issue of *Somerset Wildlife News* includes a note from Tony Liebert on behalf of the Somerset Butterfly Group. Local recorders have identified a number of sites which support rare species and the intention is to monitor these sites regularly. There is, however, a shortage of recorders in some areas of the county, such as the Mendip Hills, and Tony is asking for potential volunteers. He can be contacted by phone on: 01984 667327.



lore on "greenfield versus brownfield"

There has been widespread alarm and despondency ever since the revelations that government projections were showing a need for four million new homes in the UK by the year 2016. Although many of us may be united in wishing that the projections might be proved wrong or that demand could be quelled, there is less unity on the question of where the new homes are to be built. At first, it seemed almost heretical to question the wisdom of the argument that brownfield sites (i.e. land which has been used for now-defunct industry or urban development) should always be re-developed in preference to greenfield sites. Such questions have, however, been raised in recent issues of *ICN*, in recognition of the fact that many so-called brownfield sites contain very valuable wildlife habitats. It is now gratifying to see that the simplistic dogma of "greenfield good, brownfield bad" is now being questioned more widely.

The issue was addressed by the Urban Wildlife Partnership in a detailed review, published in September 1998 and copied to us by Peter Pirley. A particularly valuable local perspective has been provided by the January 1999 issue of *Wildlife Action*, the magazine of the Wildlife Trusts for Bedfordshire, Cambridgeshire, Northamptonshire and Peterborough in eastern England. The magazine reports that a conference, sponsored by Perkins Engines Company Ltd., has taken place in Peterborough to discuss the problem. An accompanying article by Brian Eversham, Operations Director of the Trusts' project "Wider Countryside", highlights the value of a number of "brownfield" sites in the region, including Orton Brickpits south of Peterborough, which may be nationally important for dry grassland insects.

As well as highlighting some local brownfield gems, Brian makes some general points – based on his personal opinion – which are very valuable and relevant to much of the UK. One such point relates to the educational value of many brownfield habitats. Many of today's naturalists made their childhood discoveries about wildlife on such sites, while others of a rising generation have been exposed to a more formal educational use of urban wildlife sites during the last couple of decades. A further argument, put forward by Brian, is that green spaces in and around our towns and cities may withstand visitor pressure better than rural reserves. For this reason, the brownfield sites may be acting as useful "honeypots", which help to protect "traditional" wildlife sites.

As far as the impact on greenfield sites are concerned, Brian admits that the development of new settlements can have serious



consequences for landscapes, as distinct from wildlife. However, he cites the argument, aired in *ICN* and elsewhere, that much of the land now under agriculture in the UK is intensively managed and supports little wildlife. He also points out, when such land is developed for housing, that only perhaps 25% of the area is likely to be covered by buildings. In some cases, the remaining 75% becomes occupied by woodland, grassland, lakes, reedbeds or wetlands. Conversely, if new developments consist of "infill" around existing towns and villages, they tend to obliterate the last vestiges of such habitats which until now have co-existed with human habitation. Infill developments also tend to put extra strain on already depleted supplies of water; often without the provision of water being properly considered in the planning process.

Just to show how complex these issues are, it is worth noting that recent surveys indicate that urban areas in Britain do not have significantly more plant species than the surrounding countryside. This is in contrast to the situation in central Europe. There are, however, some plants which benefit from increased habitat availability in towns. These findings, which come from a European "5th Framework" research and development programme, were reported in the 1997-98 report of the Centre for Ecology and Hydrology (part of the Natural Environment Research Council).

Butterfly population dynamics

In the compilation of *ICN*, one of the more difficult tasks is to decide how much to say about current results from butterfly monitoring surveys. Butterflies are sensitive indicators of some aspects of habitat quality and are more easily recorded than most other invertebrates, but their populations are subject to such wide year-to-year fluctuations that several years' data are usually needed in order to draw conclusions about habitat quality.

Although fluctuations represent something of a problem, they are of interest in their own right. The reason for this is that populations which reach extremely low levels in some years are more likely to undergo chance local extinctions and loss of genetic variability. It has long been suspected that such events tend to occur more at the edges of the geographical ranges of species, but only now has this been demonstrated by a study of UK butterfly monitoring data by the Institute for Terrestrial Ecology (ITE Scientific Report, 1997-98.). The study showed that populations fluctuated more widely and more erratically towards the northern edges of the ranges of the species concerned. This has important implications with regard to the problem



of habitat isolation, which tends to prevent the re-colonisation of sites and gene flow following population crashes.

A related piece of work mentioned in the ITE Report concerns the use of modelling to predict how invertebrate populations would respond to environmental changes; for example due to land management or to global warming. Such a model, based on data from the heathlands of Dorset in southern England, confirmed the value of small patches of habitat in allowing invertebrate species to maintain their populations within the area as a whole.

Populations in small patches of habitat tend to die out as the vegetation changes unfavourably for the species concerned, but new populations are established at nearby sites where favourable conditions are developing. These research findings back up the view that conservation efforts should usually take account of dynamic changes, rather than being directed towards artificially maintaining species on the same patches of ground in perpetuity (see Chapter 1 of *Conservation for Insects: a Neglected Green Issue* - AES Publications, 1991).

As far as climate is concerned, the ITE modelling studies show that, for warmth-loving species, an increase of temperature would extend the area of habitat available so that populations would be less subject to chance local extinction and would exist closer together, so that recolonisation could take place more easily following such events. These benefits would be considerable for certain species at the limit of their ranges in southern England. One such species is the Silver-studded blue butterfly (*Plebejus argus*), whose response to warming was modelled on a temperature increase in the range 2-3°C, corresponding to the present-day climate of areas 200 - 400 km further south. Again, this study backs up ideas about interactions between climate and habitat suitability which have been suggested in recent years.

SITES AND SPECIES OF INTEREST

Glutinous snail in Wales

The Glutinous snail (*Myxas glutinosa*) is one of only six molluscs scheduled under Britain's Wildlife and Countryside Act (1981). It is globally threatened and its range in Britain was until very recently thought to have become restricted to one site near Oxford. Its serious decline throughout its range in Northern Europe is thought to have been related to its exacting requirements for water quality, which has been widely impaired through disturbance and pollution.



One of the sites where the snail was known in abundance in the last century has now been found to have a surviving population, despite negative results of surveys in previous decades. The site is at Llyn Tegid (Bala Lake) in North Wales, the largest natural lake in the principality. It was thought that the species had succumbed to the lowering of the water level, caused by the construction of the Bala sluices, or to a deterioration in water quality. Indeed, the lake sediments show evidence of nutrient enrichment, and algal blooms have been seen in recent years. The re-discovery of *M. glutinosa* may help to support the case for preventing further degradation of the lake's habitats.

Sydenham Hill Wood and Cox's Walk, Greater London

AES President and consultant entomologist Richard Jones has carried out an invertebrate survey for the London Wildlife Trust at this, one of the Trust's most popular reserves. Over 680 invertebrate species were identified, including five Red Data Book species and 30 Nationally Notable ones. The deadwood habitat was found to be of particular importance, supporting species such as the minute beetle *Scydmaenus rufus*; one of the Red Data Book species. The site's proximity to London adds to its value as a semi-natural ancient woodland, but it is also thereby at risk from over-use. Richard has stressed the need for the Trust to continue its active management of the site, so as to ensure the long-term survival of the habitats which it contains.

Invertebrate Projects at Windsor

(adapted from an article by Ted Green, first published in the Newsletter of the Berkshire Network for Invertebrate Conservation)

Windsor Forest and Great Park is thought to be one of the two most important entomological sites in north-west Europe (the other is the New Forest). The Crown Estate has recognised the Estate's importance and, together with English Nature and volunteer conservation bodies, is carrying out several conservation projects. These are shown in the list below (the order of which does not in any way reflect the relative importance of the projects).

Standing dead trees

The Crown Estate recognises three categories for management:

- Dead trees in open parkland, which are a feature of the landscape will be removed.
- Dead trees in open parkland but against a tree or copse background, or in a woodland or copse with little effect as a landscape feature, might be managed but remain standing.



- Dead trees in woodland with no effect as a landscape feature will remain unmanaged.

Dead standing trees that are in a dangerous or potentially dangerous condition in public areas will be either removed or made safe by removing limbs and reducing height to make "monoliths". Several areas of woodland in the Park and Forest are considered non-intervention areas and little or no management of living or dead standing trees is carried out.

All wood cut from managed trees will be removed to deadwood dump areas, together with naturally fallen wood such as large limbs or runks with a degree of rot. The dump areas will usually be situated in or on the borders of copses or woodland as near as possible to the site of the tree of origin. There are also two large deadwood dumps, originally created after the 1987 gale but subsequently added to, which are situated in open areas and therefore create habitats which are different to those occurring in shaded dumps.

Experiments

The successful experiment with the Violet click beetle, *Limoniscus violaceus*, (ICN Ed.: see *ICN* 20), continues with a further 16 hollow beech trunks being erected. Imperial College continues studies on water-filled rot-holes and buttress root pools. Several dead wood days or workshops (targeted emphatically *not* at the converted) take place, with a national attendance of interested parties. Imperial College and Merrist Wood College arrange dead wood days annually for students.

An indirect threat from an Asian longhorn beetle

The longhorn beetle *Anaplophora glabripennis*, a native of north-east Asia, has become established in parts of New York State, USA, following accidental introductions on wood packing materials. Its larvae burrow in a wide range of broadleaved tree species, while the adults feed on the leaves and bark. It is a large insect, up to 35 mm long, and its larval galleries can be extensive enough to kill the host trees or to make them hazardous. In China, the beetle is regarded as a serious pest by foresters, even though it presumably has natural enemies there.

As far as wildlife conservation is concerned, the killing of trees by an introduced beetle would clearly have effects on woodland ecosystems, but it is not clear whether other invertebrate species would thereby be put in jeopardy. There would, however, be an indirect threat in the



shape of an increased need or desire to fell affected trees so as to reduce the risks to people and property. This has already happened in the streets of American cities, where over 1000 trees have already been removed.

Southern parts of Canada and a wide region of Europe, including the UK, would provide suitable climates for the beetle, were it to become established. This could happen quite easily, judging by the New York experience, and by the fact that the beetle has been found in or near ports in both Canada and the UK. Indeed, the beetle has been found in the UK and has even been kept unwittingly as a pet; it is a handsome creature with white dots on a shiny black background.

Biodiversity Action Plan for the Dotted bee-fly in Somerset

The Dotted bee-fly (*Bombylius discolor*) is one of three plant and animal species which have been accorded special priority in the South Somerset Biodiversity Action Plan; principal author Vikki Coles. The selection of these species from the national list was based on data gathered by the Somerset Environmental Records Centre, using methodology which was first developed for the Mendip Local Biodiversity Action Plan in 1995.

The Dotted bee-fly is classed as a nationally scarce notable species and is included in the "middle list" prepared by the National Biodiversity Steering Group. A bumble-bee mimic, it spends its larval period in the larval cells of some of the larger burrowing solitary bees. This dependence on other insects which are themselves very vulnerable to habitat loss and degradation makes *B. discolor* a sensitive indicator of habitat quality for a wide range of other species. These include animals such as the Brown hare (*Lepus capensis*), the hedgehog (*Erinaceus europaeus*), the Grey partridge (*Perdix perdix*), the Wood white butterfly (*Leptidea sinapis*) and plants such as the primrose (*Primula vulgaris*).

PUBLICATIONS

Minibeasts in and around our towns

This is the title of a educational colour leaflet for children, which has been produced by local environmental projects ("CONE" and "WEB") in the north-east of England in conjunction with English Nature. The leaflets are available at £18 per hundred from Anne Deary: Tel. 01670 542384. The leaflet is free if fewer than 50 are ordered, but a contribution for package and posting will be requested.



FUTURE MEETINGS

Butterflies and other insects of Riddlesdown" (30th May, 1999)

This Surrey Wildlife Trust field meeting will include a visit to Riddlesdown Chalk Pit, and access will be restricted to those who wear hard hats. The supply of such hats at the site will be limited, and anyone who owns one should bring it. The meeting starts at 14.30 at the car park on Riddlesdown (TQ 325605).

Butterflies and insects of Beverley Meads"

This is a morning-only London Wildlife Trust meeting in the Borough of Epsom. It starts at 09.30 at the playing fields car park at the end of Arham Road, off Copse Hill, London SW20. The site is a short walk from the Atkinson Morley Hospital, served by the No. 200 bus. Contact 181 947 3015

Hoverflies and other flying insects" (Tues. 14th July, 1999)

This field meeting of the London Wildlife Trust will start at 14.30 at Sunnersbury Triangle, Chiswick, London. Please contact Nick Pollock, 181 740 9646

Lepidoptera: Ambassadors of Biodiversity" (4-6 November, 1999)

This is the title of the 2nd International Lepidopterist Conference of Africa, which is being organised by the African Butterfly Research Institute – Kenya and the Lepidopterists' Society of Africa. The venue is the Old Mutual Conference and Exhibition Centre, Kirstenbosch National Botanical Garden, Capetown, South Africa, and the conference is to be followed by field trips in the Western Cape Wilderness area during 7th -10th November.

The stated aim of the conference is "to promote, stimulate and further our knowledge of African Lepidoptera and the conservation." It is hoped that a wide range of naturalists and biologists, both amateur and professional will attend. Please note that the closing date for receipt of expressions of interest is 30th April. Forms are available from Jenny Heath at: 209 Ringwood Drive, PINELANDS 7405, Republic of South Africa. (Tel./Fax: [27+21] 531 6840)

E-mail: aheath@mweb.co.za

Websites:

<http://www.mweb.co.za/ctlive/museums/sam/collect/life/lifediv.htm>

<http://www-tm.up.ac.za/lepidop/lepiconf.htm>

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NOTICE

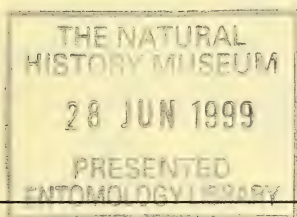
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INVERTEBRATE CONSERVATION NEWS



Vol. 29, June 1999

EDITORIAL

Biodiversity has figured prominently in the current debate about genetically modified organisms (GMOs), in relation both to wildlife and to the genetic pool of crop plants. Invertebrates represent most of the world's biodiversity, at least its animal biodiversity, and yet the media portray them as no better than bird fodder in the conservation context. Even so, the worth of some showy species in their own right has not entirely escaped media attention in the GMO debate, as shown by the well publicised story about an experiment on the Monarch butterfly (*Danaus plexippus*).

The GMO debate raises very complex scientific issues, despite being dominated by an unfocussed public fear of 'Frankenstein food' and by an understandable distrust of politicians' misguided utterances about food safety. Food safety may turn out to be the least important threat from GMOs, although we should bear in mind that the biochemical products of anti-disease or anti-pest genes could be toxic to us as well as to the target fungi or insects *etc.* Quite apart from scientific questions, moral questions arise from the patenting of organisms and genes and from the methods employed to compel farmers to buy their seeds every year, rather than saving their own. There is even a question as to whether the growing human population really needs the benefits of increased yield, reduced loss and enhanced nutrition that GM crops might offer.

As far as invertebrate populations are concerned, GMOs could have both direct and indirect effects. An obvious direct effect could arise when a genetic modification converts a crop species into a non-foodplant for invertebrates. This is a neat way of preventing pest outbreaks, and it has the undoubted environmental benefit of reducing



the need for chemical applications. On the other hand, non-GM crop plants support many non-pest species, and these could suffer from GM crop substitution.

Perhaps more worrying is the possibility that genes for pest-resistance could be transferred from GM crops to related wild plant species through cross-pollination. This could have very far-reaching consequences, as the genes could spread widely through wild plant populations; perhaps with a competitive advantage from the new resistance genes.

Another indirect effect on invertebrates could arise from the use of herbicide-resistant GM crops. Such crops can be sprayed with impunity during the growing season, but wild plants in and around them could be wiped out. Agricultural 'weeds' are important invertebrate foodplants, and they have already been greatly reduced in their diversity and abundance by modern (pre-GM) farming methods. Bearing in mind the harm that is already being done to wild plants and their dependent invertebrates, we should perhaps give some credence to the biotechnology companies. They argue that herbicidal treatment of the growing crop can be restricted to areas where weeds are a problem, thus reducing the precautionary and indiscriminate use of herbicides.

One additional concern, which seems largely to have escaped media attention, is that biological control agents are being genetically modified, along with crop plants and farm animals. One well-known example in the UK was the anti-insect virus which was given a scorpion toxin gene, so as to make it more effective against caterpillars on *Brassica* crops. Some conservationists feared that the virus, which was pathogenic to a wide range of Lepidoptera, could harm populations of non-target species. Thus, there was something of an outcry when it was experimentally introduced into an enclosure near Wytham Wood in Oxfordshire, albeit an insect-proof one. To date, the modified virus has not been released into the wild, but its proponents have argued that it would kill the target pests so fast that it would die with them and thus not spread to non-target populations.

One thing is clear; there is a need for invertebrates to be given a much higher profile when decisions are made about the licensing of GMOs and about the types and scales of research which are needed to evaluate their potential impact. Is this not just the sort of promotional work which could be the role of an organisation dedicated to invertebrate conservation?



NEWS, VIEWS AND GENERAL INFORMATION

consultation on the British Wildlife and Countryside Act: an update

As mentioned in the last issue of *ICN*, the effectiveness of this Act for the protection of organisms other than birds was being assessed by consultants working for the Joint Nature Conservation Committee (JNCC). Views were submitted by various interest-groups, comprising 18 organisations and individuals. They represented various taxonomically-based groups (including several invertebrate ones), general conservation bodies and the police. The resulting report, "*A Review of the Operation of Species Legislation in Great Britain*", under the authorship of Miles King, Ian Hepburn and Susan Gubbay, has been sent to the JNCC, to Wildlife and Countryside Link and to the participants in the study.

As mentioned in *ICN* 28, some important areas of agreement emerged at one of the consultation exercises, involving various people from invertebrate organisations. It is now reassuring to see that these views have been carried through to the report, but other views – perhaps less reassuring – have also now emerged. A particularly important view was that most species on Schedules 5 and 8 of the Act are threatened far less by deliberate killing or collection than by the destruction, degradation and fragmentation of habitats and by the wider threats of pollution and climate change. In this context, there was also a consensus that there are inadequacies in the links between species protection and habitat protection. Even so, it was agreed that species protection had brought about an indirect benefit whereby some sites supporting scheduled species had been notified as Sites of Special Scientific Interest (SSSIs).

Although site protection was not at issue in this study, the report noted a general concern that there were weaknesses and loopholes in the law regarding SSSIs; for example in relation to the lack of access rights for officers of the statutory agencies. Also, there was concern that the Act was not giving adequate protection to scheduled species outside specially designated sites such as SSSIs. Particular concern was expressed about the defence clause which allows scheduled species or their habitats to be harmed, provided that this is done as part of an otherwise lawful activity. In contrast, a field naturalist taking one specimen is committing a criminal offence. Such anomalies were identified by *ICN* and its precursor newsletter when the Act was still being drafted and debated up to 1981, but it's no consolation to see that it took nearly twenty years for serious attention to be paid to our arguments.



The possibility of revising species protection in new legislation met with a range of suggestions. Most participants in the invertebrate consultation seemed to favour limiting the scheduled lists strictly to species which could demonstrably benefit from the force of law. This group also felt that problems had arisen through the inclusion of both vertebrates and invertebrates in Schedule 5 of the Act, as the provisions appropriate for their protection were often very different. Also, it was generally felt that the selection process had been slow and that it had been applied inconsistently between taxonomic groups, resulting in an illogical list.

Perhaps, in view of the balance of threats to wildlife and of the administrative headaches of species protection, someone might have been tempted to suggest scrapping the scheduling system in favour of much better provisions for habitat protection. No-one went that far, but there were several consultees who were evidently at the other end of the spectrum. They were in favour of 'reverse scheduling' on the lines already in force for birds; i.e. that all species should be protected by law, except for certain pest and introduced species. This suggestion was not included in the executive summary, but some space in the body of the report was devoted to a consideration of its pros and cons. Evidently, some of the consultees have remained unaware of the detailed and painstaking arguments that have been developed over many years, regarding the conservation needs of invertebrates and the requirements for their study.

As far as enforcement was concerned, it was agreed that the law had some deterrent effect, not only against the deliberate killing or collecting of scheduled species, but also against potentially damaging activities at sites supporting these species. Set against the latter benefit was the defence clause of "otherwise lawful activity", which has already been mentioned. Another perceived problem was that the law was deterring legitimate work on scheduled species, such as research, recording and monitoring. It was also noted that the law could encourage illegal collection (presumably because of increased black market prices, or because some people are wilfully antagonistic towards laws which they perceive as eroding their natural rights).

Despite the deterrence of illegal killing and collecting, enforcement has been impeded by problems of complexity and definition, together with a lack of case-law. For this reason, there was a call for the police to be given greater powers, especially in cases where they suspect that an offence is likely to be committed. This proposal might raise concerns that anyone carrying a net or other collecting equipment, at least at



certain sites, could be questioned or even arrested as a suspect. The study did not involve a meeting between invertebrate groups and the police, but a dialogue now seems desirable, as there are evidently problems perceived on both sides.

Another of the arguably beneficial effects of the law, as noted in the report, has been the change in attitude about collecting, especially with regard to butterflies. It is certainly true that invertebrate conservationists have long argued that there are many more worthwhile things to do than to pursue the outdated practice of cabinet-filling for its own sake. The law has reinforced this argument, it is a good thing. On the other hand, it is a bad thing if it has encouraged an anti-collecting prejudice among people who do not understand why collecting within an appropriate code of conduct is essential for the study of invertebrates.

ES Area Representatives Scheme

The last issue of *ICN* included a request for someone to take on the role of AES Habitat Conservation Officer. This post, as developed over recent years by Martin Harvey, includes co-ordinating the work of the ES Area Reps. We are now very glad to report that Peter Sutton has been elected by the AES as Martin's successor. Martin is now the Reserves Data Officer for the Hampshire & Isle of Wight Wildlife Trust, and we wish him well in this new post. Meanwhile, he is still resident in Berkshire and continues as our Area Rep. for that county.

From **Lancashire**, Sharon Flint writes that, early last year, she was asked to become a member of the Conservation and Reserves Committee of the North Lancashire Wildlife Naturalists' Group of the Lancashire Wildlife Trust (LWT). She has been advising the Trust on invertebrate conservation, particularly in relation to ponds, a number of which she has been surveying over the year. She has led pond ecology days on local LWT reserves.

Sharon Flint's survey and advisory work has included two ponds which are now used for diving, on behalf of a small private leisure company. She has also recently been working on a survey report for English Nature on Haweswater (one of only two natural lakes in Lancashire) and its much smaller neighbour Little Haweswater on Aitbarrows National Nature Reserve. Another of her current projects is an aquatic invertebrate survey of different management regimes onighton Moss, a reserve of the Royal Society for the Protection of Birds.

From **Cambridgeshire**, Robert Partridge has updated us on the story of the site at Mepal with its ancient elm trees (see *ICN* 19 and 22). He



writes....“Despite their considerable landscape value, a number of trees had been removed at different times before I moved here. The reason given was that they had been dead or dying or that they posed a threat to people or cattle walking beneath them; however, elms like these with large burrs on the trunks also happen to be very valuable to the decorative wood-turning business. A single tree can be worth hundreds, even thousands of pounds.

“Over the past three years, I have managed to establish the presence of bats as well as some good localised bird species such as woodpeckers and Spotted flycatchers. Several local people took part in letter writing to the owners (the Church Commissioners), the local press and various conservation bodies. I also met the District Council Trees and Landscape Officer at the site to discuss its importance.

“A key development was the discovery of the White-letter Hairstreak (*Strymonidia w-album*) here in 1997 - particularly pleasing as I was watching the trees with this species in mind! To cut a long story short, the elms are now recognised as a County Wildlife Site. This does not carry much statutory protection but it has raised the trees' profile and the owners are now very much aware of what will be involved if they make further applications to remove any of them.

“Recently, I discovered that one of our national sand and gravel extraction companies is planning to re-work some local pits. Since they were last used some twenty years ago, a good growth of willow, willow and osier has appeared around them, as is usually the case. Much less usual is the presence of a strong colony of the Goat moth (*Cossus cossus*) in these trees and bushes; last year my two sons were picking up pupal exuviae at the rate of one a minute. Osier appears to be the favoured food, with even quite small bushes showing signs of larval working. I have met the manager on site. He was impressed by a set specimen and by photographs of the larva.. The best areas have now been marked on the site map, and it may be that they can be avoided in future. I was surprised by the seriousness with which this particular manager (and company, apparently) took conservation matters - a small ray of hope.

“Finally, a less happy tale. There has been a disused airfield here since the Second World War. One or two small factories have been built on the edges but it has been largely undisturbed for fifty years: an area of at least forty acres (16 ha) with a variety of grassland and different types of scrub. All the regular grassland butterflies were here in profusion, literally thousands in good years, with strong colonies of the Ringlet (*Aphantopus hyperantus*), and many nesting birds of the farmland species that are now giving cause for concern.

“Despite concerted protest from three nearby villages, permission was given to build a straw-burning power station. Work has begun and the site was levelled in two days. One of the arguments used for the plant was that because straw is a renewable resource, such a power station would be good from a conservation point of view. My reason for mentioning this is that the county wildlife trust showed no interest in defending this place or even negotiating to save the odd corner for wildlife. They felt that there was nothing rare enough to justify their involvement. I find it worrying that there seems to be a more enlightened approach among some private companies than amongst some professional conservationists.”

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SITES AND SPECIES OF INTEREST

Dungeness, Kent, SE England

This entomologically well-known coastal shingle area has been the subject of a new order to ban off-road vehicles. According to "*Habitat*" the newsletter of the Environment Council, the order was made by Deputy Prime Minister John Prescott under Section 29 of the Wildlife and Countryside Act. It applies to quad bikes, scrambler bikes and four-wheel drive vehicles, although fisherman and local businesses will be allowed to use some tracks. It was alleged that vehicles had been damaging the site's distinctive shingle ridges and threatening its wildlife.

Marsh Fritillary project in Cumbria, NW England

English Nature reports in its magazine that an electricity supplier, Norweb, has teamed up with it to clear invasive scrub from a small field in Cumbria where the foodplant of the Marsh Fritillary (*Eurodryas aurinia*) occurs. The clearance, which was carried out by the company's



contractors as an extension of an existing power line maintenance scheme, is intended to allow re-establishment of the foodplant. The site forms part of the Finglandrigg National Nature Reserve, where English Nature hopes to re-introduce the butterfly so as to augment its population beyond the three Cumbrian sites where it still exists.

A new brownfield nature reserve in the English Midlands

With all the pressure to develop so-called brownfield sites, it is good to learn from English Nature's "*Urban Wildlife News*" that a former colliery site at Coventry, Warwickshire, has become a nature reserve after many years of controversy about development. Claybrookes Marsh is said to hold an exceptional range of invertebrates, including a number of local and nationally restricted species, some of which have a mainly coastal distribution. One of the latter is the bug *Chorosoma schillingi*, which is largely confined to habitats on the south coast of England and to the Breckland of East Anglia. Wetland flies are particularly well represented, and twelve of the forty-eight British species of soldier fly occur at the site, including the rare *Oxycera morrisii*.

It is interesting that the ruderal and grassland plant communities, typical of disturbed sites, are in this case supporting a nationally restricted leaf beetle, *Cryptocephalus aureolus*, which feeds on the yellow-flowered composites *Hypochoeris radicata* and *Hieraceum* spp. Other nationally rare insects at the site include the cranefly *Nephrotoma crocata*, which has declined markedly in recent decades, the solitary bee *Andrena bialis* and the fly *Phaenicia atriceps*, which is associated with reed swamp vegetation. Information about the nature reserve can be obtained from: Andrew Thompson, Warwickshire Wildlife Trust, Brandon North Nature Centre, Brandon Lane, Coventry, Warwickshire CV3 3CW.

A new London record on brownfield sites

The Summer 1999 issue of the London Wildlife Trust's magazine carries a story which emphasises the importance of brownfield sites for wildlife. As mentioned in recent issues of *ICN*, there is now a healthy debate about the presumption that such sites should be developed for housing in preference to 'greenfield' ones. The story concerns the stripe-winged grasshopper *Stenobothrys lineatus*, which is normally associated with chalk grassland and heathland. It has now been newly recorded for the London area at two sites, one of which is the Camley Street Natural Park, a former lorry park and now a flagship reserve for the Trust. The other site is Adelaide Nature Reserve, a railway embankment in Camden.



Surveys by the Somerset Invertebrates Group, SW England

This Group, though independent, is backed by the Somerset Wildlife Trust, enabling it to hold identification workshops, in addition to its field meetings. At a meeting in March this year, Group members went in search of the Depressed river mussel (*Pseudonodonta complanata*) a Biodiversity Action Plan bivalve mollusc which seems to have its best European stronghold in Britain. The Group's search revealed colonies in the River Brue at Burtle and in the Rivers Hunstpill and Parrett. Also, on a separate visit, a Group member found it still present at the one site in Somerset (Long Load) where it had previously been recorded, in 1950.

Surveys by the Gloucestershire Invertebrate Group

This West-of-England group continues to provide numerous interesting reports from its field meetings, which are revealing the presence of many species which are indicators of high habitat quality. A new streamlined system has been set up for passing these records to the site owners or managers and to the Gloucestershire Environmental Data Unit. Finds last season included several Red Data Book species, such as the beetle *Osypha bipunctata* at Alderley Wood (the second county record), the Mountain bulin snail *Ena montana* and a deadwood beetle *Dirbagus pygmaeus* at Francombe Wood. On the same day as the Francombe Wood meeting, a new county record was made at Pinbury Park, an old deer park now largely engulfed in scrub and secondary woodland. This was the very rare RDB beetle *Hypulus quercinus*, which was found in an old oak stump.

In addition to the recording done at the Group's site visits, which depends on the involvement of specialists in various taxa, members of the Gloucestershire Wildlife Trust have been asked to provide records over the next few years of any sightings of two easily recognised species; the Glow-worm (*Lampyris noctiluca*) and the Roman Snail (*Helix pomatia*), for which the county is a nationally important area. A national survey was conducted ten years ago, and the intention is to see how these two species have fared since then.

The Hawaiian happy face spider: biodiversity on islands

The Spring 1999 edition of "Wings", the excellent magazine of the Xerces Society, is devoted to spiders and scorpions. Rosemary Gillespie, a Scottish-born associate professor at the University of Hawaii, writes about the Hawaiian happy face spider (*Theridion grallator*); so-called because the dorsal surface of its abdomen bears colour patterns which often take the form of a smiling human face. Dr. Gillespie explains that



ne species shows all its various colour forms at similar frequencies on each of the chain of islands where it occurs: Oahu, Molokai, Maui and Hawaii. The genetic basis of the variation is, however, not the same in each case, as shown by the fact that the genes for colour pattern are sex-linked in the Hawaiian population but not elsewhere.

Dr. Gillespie argues that the diversity of colour pattern probably evolved independently on each island, perhaps as a defence against the prey-searching behaviour of predatory birds. Too few of the spiders are likely to have moved between islands to have carried the full complement of colour variations with them, and this assumption is supported by molecular studies.

For those of us who live in countries where high quality habitats have often become restricted to 'islands' within intensively exploited land, Dr. Gillespie's evidence can offer some encouragement. It helps to confirm that new diversity can evolve from very small founder populations on islands. On the other hand, the biodiversity of both real and biogeographic islands is very vulnerable to severe degradation - beyond the capacity of most species to adapt or to re-colonise from elsewhere. In the case of Hawaii, the biota has been undergoing a serious decline, attributable to invasions of alien species, the small size and often localised distribution of populations, and habitat destruction. As a forest species, *T. grallator* may be able to survive only if the remaining areas of natural forest can be protected.

Spiders on Skokholm, SW Wales

The small island of Skokholm does not have any spiders quite like the happy face spider mentioned in the previous item, but it has some species no less fascinating in their habits, according to Graham Thompson, writing in the Spring 1999 issue of "*The island Naturalist*". For example, he describes the Purse-web spider (*Atypus affinis*), which lives for up to four years in a silken tube underground. He found this spider on the island for the first time since 1950. It was in the 1950s that most of the island's records of species were made, and Graham Thompson now intends to see whether the spiders then recorded are still present. One particularly interesting find was made in the 1930s by the arachnologist W.S. Bristowe. He recorded a harvestman, *Nelima laticata*, which was new not only to the island but also to Britain.

The medicinal leech in Cumbria, NW England and in West Wales

The medicinal leech, *Hirudo medicinalis*, once commonly used for medical blood-letting, had become so rare in Britain that it was one of the first invertebrates to be placed on Schedule 5 of the Wildlife and



Countryside Act. It is also protected by European legislation and is a Biodiversity Action Plan (BAP) species in the UK. There are believed to be about twenty remaining sites, and some of the wildlife trusts are carrying out surveys of previously known and apparently suitable water bodies so as to find out more about the status of this annelid worm.

In 1998, 37 sites were surveyed throughout Wales by the North Wales Wildlife Trust, and *H. medicinalis* was found at Talley Lakes, a Carmarthenshire nature reserve of the Wildlife Trust, West Wales. The BAP status of the species will be a central consideration for the Trust's management of the reserve. The colony found in Cumbria was also on a wildlife trust reserve; in this case the Cumbria Wildlife Trust's Barkbooth Lot reserve, which has been managed mainly with another BAP invertebrate in mind: the High brown fritillary (*Fabriciana adippe*). The report, in "*Natural World*" magazine, suggests that the leeches may be benefitting indirectly from this management, as cattle (a potential source of blood) are being used to control the heavy bracken cover on the site.

FUTURE MEETINGS

Here is a small selection from local invertebrate meetings in Britain, timed to take place after publication of this issue of *ICN*. Although non-members of the organisations concerned are likely to be welcome in almost all cases, they should always first check with the leader or the named contact person.

17 July (Saturday)

A Hampshire & Isle of Wight Wildlife Trust meeting at **Hilsea Lines** for a morning's survey of the White-letter hairstreak.

Meet 11.00 a.m. in the car park on the eastern side of Hilsea Roundabout (SU 659038). Leader: Ron Dooley (01705 384538).

14 August (Saturday)

A Gloucestershire Invertebrate Group meeting at **Forthampton Oaks, Shuthonger & Brockeridge Commons**.

Forthampton Oaks, recently added to the list of Key Wildlife Sites for its concentration of ancient pollard oaks, supports one of the very few colonies of the RDB cobweb beetle *Trinodes hirtus*. A target at Shuthonger is to re-find the rare *Apion astragali* weevil, discovered there by David Atty in 1972 and known from very few sites nationally. At the time that the Group's newsletter announced this meeting, permission for access had been granted only for the Shuthonger visit.

Meet: 10.30 a.m. on Shuthonger Common at approx. SO 887352. Contact point: Keith Alexander (01285 651171).



9 September (Sunday)

Gloucestershire Invertebrate Group meeting at **Aston Farm, Herington**:- A day is to be spent exploring the limestone grasslands, woods and lake shores of this site, where some rare flies were recorded by the Diptera Recording Schemes in 1979. Little else seems to be known about the site. Access permission had not been sorted out at the time of the announcement in the Group's newsletter.

Meet 10.30 a.m. in the parking area near lake (ST 900986). Contact point: Guy Meredith (01242 524138)

6 September (Sunday)

Hampshire Network for Invertebrate Conservation (Hampshire & Isle of Wight Wildlife Trust) meeting at **Greywell Moors**, an area of fen, deer carr and grassland, fed by chalk streams draining into the River Whitewater. Crane flies are the main target, following the discovery of several rare spp. by Alan Stubbs in 1996, but people interested in other groups are welcome.

Meet 10.30 a.m. by the pumping station (SU 722513). Leaders: Martin Harvey (01491 671889) and John Durnell.

5 October (Saturday)

Gloucestershire Invertebrate Group meeting at **Rendcomb Park**: an important ancient parkland; recently added to the list of Key Wildlife Sites; well known for its deadwood beetles, but relatively poorly recorded. This, the Group's second visit, is timed for the period of peak nectar fruiting.

Meet 10.30 a.m. in the main car park at Rendcomb College (SP 8098). Contact point: Keith Alexander (01285 651171).

LETTER

From Mrs. A.J. Palmer,

39 High Street, Codicote, nr. Hitchin, Herts., England

I am writing in the hope that one or more AES members may be able to assist us with a survey of invertebrates in a highly environmentally sensitive area to the west of Stevenage. There is a proposal to build 10,000 houses on this Green Belt land and we desperately need to know what invertebrates, scarce or otherwise, are to be found there. Within the site are ancient woodlands and hedgerows, and adjoining it is the extremely important Knebworth Woods SSSI complex. I understand that the AES sometimes holds field meetings. I was wondering whether there was a chance that one could be held on this fascinating piece of unspoilt countryside near Stevenage.

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NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as *bona fide*. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

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INVERTEBRATE CONSERVATION NEWS



No. 30, October 1999

EDITORIAL

Those of us who bemoan the Cinderella status of invertebrate conservation have often drawn attention to the fact that invertebrates are a vital food source for larger animals - especially birds and bats - which get much more publicity and conservation funding. By doing so, we unfortunately run the risk of pandering to the ignorance and prejudices of those who relegate invertebrates to the status of mere bird-fodder. The truth is, of course, that they represent a much greater range of biodiversity and of ecological roles than the species that devour them.

The latest twist to the ivermectin story, as mentioned in this issue of *IN*, seems to illustrate the fact that public awareness of habitat loss and degradation get aired only when the most showy forms of wildlife are involved. There would probably have been an outcry long ago if birds had been affected by ivermectin as directly and severely as dung-inhabiting invertebrates. Now that the indirect effect on birds is becoming newsworthy, perhaps the problem will be taken more seriously.

Perhaps instead of allowing invertebrates to be portrayed as bird fodder, we should portray birds as indicators of the status of invertebrate populations. Although it would be nice to turn a few conventional prejudices on their head, we would need to avoid placing too much value on vertebrates as indicators, as most of them are more dependent on the sheer quantity of food than on the variety of invertebrate prey. For example, although farmlands may support fewer birds than they used to, some birds can continue to survive on a sadly depleted invertebrate fauna, consisting of large populations of a few (sometimes pest) species. Even if these are wiped out locally by a pesticide, the birds can probably hunt elsewhere.



The sad fact is that, without an effective non-governmental structure or organisation dedicated to invertebrate conservation, there is little chance of getting enough people to listen to any ideas that we may have, however justified or logical they may be. Efforts towards the establishment of such an organisation have been mentioned in previous issues of *ICN*, and these are continuing, as reported in this issue. The struggle is, however, very much an uphill one, and help is desperately needed from anyone who has the means to help with tasks such as copying and circulating documents to organisations and individuals involved in conservation.

NEWS, VIEWS AND GENERAL INFORMATION

New publicity for side-effects of ivermectin

A number of recent well publicised reports have highlighted the dramatic decline in populations of various British bird species, such as the skylark (*Alauda arvensis*), the chough (*Pyrrhocorax graculus*) and the grey partridge (*Perdix cinerea*). Much of the blame is being laid at the door of intensive agricultural practices, which deplete the invertebrate food supply for many types of bird. The practices that have attracted the most concern include the use of pesticides, ploughing very close to hedgerows and indeed the continuing removal of hedgerows.

Perhaps less well publicised is the use of ivermectin; a drug which is administered to livestock for the control of internal parasites. Its undesirable side effects on invertebrates and other wildlife have received little attention except in entomological circles. Recently, however, the much more powerful voice of our ornithological friends has given some publicity to the indirect effects of ivermectin on birds whose supply of invertebrate prey has been reduced by the widespread loss of dung as a habitat, as well as by other kinds of habitat loss or degradation.

As mentioned in various issues of *ICN* over the years, ivermectin remains potent in the dung of mammals and prevents it from being colonised by the many species of flies, beetles and other invertebrates whose young stages either require it directly as a food source or prey upon dung-feeding species. Some insects dependent on dung, such as the large dung beetles of the genera *Geotrupes* and *Typhaeus* and the predatory Hornet robber fly (*Asilus crabroniformis*) are large and attractive enough to be treated as showcase species.

One particular piece of publicity has come via a press release from the National Trust; one of the largest landowning organisations in



England, Wales and Northern Ireland. The Trust's tenant farmers are being brought into a scheme requiring them to use alternative drugs for parasite control. The scheme is being phased in with the renewal of tenancies and has so far involved over 100 farmers since 1996/97.

The Trust's press release focuses on observations of bat populations in Cornwall. Since the ivermectin ban, the number of rare horseshoe bats (*Rhinolophus* spp.) roosting at a church near Boscastle, north Cornwall, has increased to the point where this roost is now the second largest of its kind in the country. The Trust thinks that the ban has contributed to this increase by helping to restore the supply of insect prey. There is also circumstantial evidence of increased bat predation of wing-feeding insects near Kilkhampton on the Devon/Cornwall border. Simon Ford, the Trust's conservation adviser for Cornwall, has reported that the floor of a barn, which had been specially modified as a bat roost, is regularly strewn with moth wings and the outer skins of insects commonly found living on cowpats.

Heritage Ponds Project

Funding from the UK's Heritage Lottery Trust has been made available for pond restoration work over the next four years, according to the World Wildlife Fund for Nature. The WWF has teamed up in the project with more than 20 other organisations under the co-ordination of the Ponds Conservation Trust. Various endangered invertebrates are among the species that are intended to benefit, and we look forward to learning more details of the guidelines that are to be used. As Alan Stubbs pointed out in a contribution to the book *Habitat Conservation for Insects: a Neglected Green Issue* (1991), restoration should be done in stages so that invertebrates and their habitats can recover from the inevitable disturbance. All too often, this precaution is not observed, sometimes because of conditions which are applied by grant-awarding bodies.

Individual species impact assessment

Environmental assessments are often carried out at sites where development is proposed, but all too seldom are invertebrate habitats taken properly into account. In the UK, such an assessment is legally required only if the site belongs to one of certain designated categories (e.g. Site of Special Scientific Interest) or if the development would exceed a certain size. The ecological impacts of proposed developments have to be included in the assessment, but there is rarely any requirement for invertebrates to be considered. Nevertheless,



developers who wish to cultivate a good public image are increasingly going beyond the minimum requirements and are sometimes commissioning surveys that employ the services of invertebrate specialists.

A very useful set of guidelines for invertebrate site surveys was produced in 1992 by the Joint Committee for the Conservation of Invertebrates under the authorship of Steve Brooks. It was published in *British Wildlife* magazine (1993, vol. 4, pp 283-286), and permission has recently been granted to the AES for the publication of a stand-alone version. These guidelines stress the need for every different type of habitat within the site and the taxa inhabiting them to be assessed as far as practicable. If this criterion were to be followed, the quality of assessments would improve dramatically.

A further suggestion was made last year in an article by Steven Falk, writing in the *British Journal of Entomology and Natural History* (1998, vol. 11, pp. 19-29). His system is called "individual species-impact assessment" and involves the production of a separate site map for each scarce or otherwise important species recorded on the site. Each map shows the distribution of plant species and other features of the habitat, together with the location(s) where the invertebrate species has been recorded. The location of the areas of potential impact is also shown on this map.

Accompanying the species map is a set of notes under the following three headings: (1) "brief summary of biology/ecology requirements", (2) "likely impact of the proposed development" and (3) "suggested mitigation measures and habitat management". On this basis, Steven Falk places the likely impact of a development proposal into various categories of severity (including an "uncertain" category). The resulting report should clearly identify the advised mitigating action or management, with an explanation of the evidence and interpretation on which this advice is based.

To illustrate the operation of individual species-impact assessments, Steven Falk quotes two examples from his own area of Warwickshire in the Midlands, where he is a local authority ecologist. One of the sites concerned was an SSSI; the Herald Way Marsh SSSI in Coventry. This is a post-industrial site which had been designated for its remarkable assemblage of rare insects. The proposed development would have allowed the retention of a small marshy area, which was alleged to be sufficient to sustain the rare species. When, however, Steven produced assessment sheets for each of 63 scarce or endangered species, he was able to show that 28 would have been substantially harmed and a further nine moderately harmed.



In his second example, Steven was commissioned to do a survey of a stretch of the River Cole for which a flood alleviation scheme was planned. It was evident that the main existing features of interest, especially shingle banks, would be severely damaged by the scheme, but a series of individual species assessments showed that it would be possible to carry out the scheme in such a way as to allow the formation of similar and equally valuable habitat features in places which were currently occupied by rather uninteresting improved pasture. His suggestions for implementing these changes were accepted, as they were compatible with the proposed scheme.

This approach appears to be a very useful development which promises to enhance the value of the general approach to surveys, which was set out in the JCCBI guidelines. Both approaches have been developed since the publication of the AES book *Habitat Conservation for Insects: a Neglected Green Issue* (1991), and it is hoped that they will be included in a new edition.

Artificial feeding of birds: why no debate?

Over the years, we have often aired the concern that the feeding of wild birds could adversely affect populations of localised invertebrate species by artificially boosting the bird populations. This is a complex issue, and there is certainly room for debate, as pointed out over eight years ago in the AES book "Habitat Conservation for Insects: a Neglected Green Issue" (1991).

Even though our questioning of the wisdom of bird feeding has been mild and tentative, we might have expected something of a backlash by those who see it as a form of conservation and not just one of many measurable ways of managing that very artificial thing; the garden. The absence of any such reaction (either for or against) indicates that the book has remained unread by many people who probably should have read it!

We have always hoped that some organisation with proper funding would like to co-operate with us in commissioning some research to study the indirect impacts of feeding wild birds, but all we ever see is the uncritical approach adopted by most of the wildlife and conservation media. We still hope for co-operation, rather than confrontation, and so we have generally kept fairly quiet. However, it is perhaps a little disappointing to see the uncritical approach being voiced in *Urban Wildlife News*, published by English Nature (vol. 16, August 1999). An article in the magazine refers to research done many years ago in the USA. This led to the development of more palatable food mixes and more attractive bird feeders; good news for people



who enjoy seeing birds in their gardens, and good news for birds. However, just a few words about the poor little invertebrates which they also devour might not have been amiss.

National Trust funding for biodiversity projects

The National Trust (for England, Wales and Northern Ireland) has allocated a major sum for biodiversity projects, with plans to make, £500,000 available over the next three years. Specific invertebrate projects already approved include:

- survey and public information displays about the longhorn beetle *Oberea oculata*.
- field studies on the distribution, habitat associations and implications for management of the whorl snail, *Vertigo lilljeborgi*, in the Lake District.
- a major biological survey of marine interests of strandlines and beaches in Cornwall, where the Trust leases much of the foreshore below its properties from the Duchy of Cornwall.
- surveys of decayed-wood beetles at Whiddon Deer Park (Devon) and Studley Park (Yorkshire).
- survey and management appraisal of Hornet robber fly (*Asilus crabroniformis*) sites in Devon.

English Nature/AES Invertebrate Conservation Slide Pack

We are pleased to announce that the 48-slide Invertebrate Conservation Pack on Heathlands, Grasslands, Woodlands and Wetlands is now available again. The cost of the pack with accompanying notes is available for £35 including postage and packing. Orders with payment (cheques made payable to the AES) should be sent to Wayne Jarvis, AES, PO Box 8774, London SW7 5ZG. Please allow 28 days for delivery.

AES Area Representatives Scheme

In the last issue of *ICN* we announced that Peter Sutton had been elected to take over the role of AES Habitat Conservation Officer. Peter is continuing on from the sound footings laid by Martin Harvey and details relating in particular to the AES Area Representatives Scheme will appear in *ICN*.

We also welcome Peter May as Area Representative for West Sussex. If anyone wishes to join the Scheme or merely wants to find out more information, please write to Peter Sutton c/o the usual PO Box address or e-mail him at HCO@theaes.org



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SITES AND SPECIES OF INTEREST

More on the medicinal leech

The last issue of *ICN* included a note about site surveys for the medicinal leech (*Hirudo medicinalis*) in various parts of England and Wales. A further report has now come from the Hampshire and Isle of Wight Wildlife Trust, which has searched thoroughly for this endangered species in the New Forest. Unfortunately, the leech was found in only a few ponds and therefore seems to have disappeared from many others where it once occurred. The Trust now plans to do further work to investigate the reasons for this decline with a view to reversing it.

Meanwhile, the biological survey team of the National Trust found the leech last autumn in a small tarn near Tarn Hows in the Lake District, although not in Tarn Hows itself. Keith Alexander reports that this is a new locality, quite distant from the nearest previously known one. It brings the total number of Cumbrian sites to sixteen. Further surveys were being planned for this year.



More crayfish surveys

As mentioned in *ICN* 26, rivers and streams in various British counties are being surveyed for the native White-clawed crayfish (*Austropotamobius pallipes*). The aim is to find how many watercourses will support populations following the disastrous effects of habitat degradation and of the fungal disease, crayfish plague. The fungus that causes this disease was introduced together with stocks of the North American signal crayfish (*Pascifasticus leniusculus*). A guide on the disease is available in England and Wales from the Environment Agency, Rivers House, East Quay, Bridgewater, Somerset (Tel. 01645 333111).

The latest news comes from the Wildlife Trusts for Bedfordshire, Cambridgeshire, Northamptonshire and Peterborough, which has been running surveys with funding from the Environment Agency. Their area of eastern England includes extensive low-lying areas with many watercourses. A small population has been found near Daventry in Northamptonshire, in addition to one that was already known on the border with Leicestershire. In Bedfordshire, of 66 sites surveyed by John Green, only two were found to support populations of this legally protected species.

The crayfish plague cannot be eradicated, but there is scope for the restoration of habitats that have been degraded by over-management of rivers. In particular, the Trusts are concerned to find that the Bedfordshire streams, whose headwaters rise on the chalk, have been in some places dug to the bedrock and therefore no longer provide a varied habitat with a gravel bed and hiding places for the crayfish. The attention now is to seek ways of redressing this problem, while also assessing the extent of the existing colonies of the crayfish.

The Hornet robber fly in England: survey findings

The Hornet robber fly (*Asilus crabroniformis*), a rather spectacular predator of other insects, was once widespread in lowland England and Wales, but is now known from fewer than 20 sites, concentrated in the Dorset heathlands of southern England and in parts of South Wales. As mentioned elsewhere in this and previous issues of *ICN*, this insect is associated with the dung of grazing animals and thus seems to have suffered from the veterinary use of the anti-helminthic drug ivermectin.

The Somerset Wildlife Trust has reported that this robber fly has been found over the last year or two at a number of previously unreported sites in the counties of south-west England. There is a concentration of sites in Exmoor, which is now emerging as a national stronghold.



Meanwhile, the National Trust has commissioned a survey to re-locate *Asilus* on known sites belonging to the Trust in Cornwall. Keith Alexander reports that it was found at only one site in 1998, although it might have been missed at the others owing to a rather late sampling date. On the other hand, another survey at NT properties in the Goring Gap (Berkshire) seems to have been too early for the insect's rather late flight period in 1998, and so no sighting was made there. However, the Holies Down site was found to be in excellent condition for *Asilus*, with rough pasture being grazed by small numbers of cattle from an organic herd.

British wasp survey

According to a recent issue of *Urban Wildlife News*, published by English Nature, help is wanted with a survey of the distribution of social wasps in Britain. In the 20 years since the last large-scale survey was made, two species have become newly established in Britain; *Dolichovespula media* and *D. saxonica*. Anyone wishing to help is asked to send dead specimens with dates and localities (including six-figure grid references if possible) to: Tom Ings, Department of Biology, University of Durham, South Road, Durham DH1 3LE.

Abney Park Cemetery: still striking a balance (and more on bird feeding)

This site in north-east London was the subject of the earlier stories in the *Bulletin* which gave birth to *ICN* many years ago. Looking back on those days, it is interesting to see that very few other people were then promoting urban wildlife conservation!

By the early 1970s the cemetery had become a haven for wildlife but was regarded as untidy by some of those whose relatives were buried there. Eventually, the London Borough of Hackney took over the site and was amenable to views from various interest groups. The latter later got together as the "Friends of Abney Park Cemetery Trust", and they continue to exchange their newsletter for *ICN*.

Occasionally, the tidiness-versus-habitat debate re-surfaces, as was apparent from the July 1999 issue of the Friends' newsletter. It seems that a brother and sister visiting a grave had complained to the local newspaper that their family plot was "overgrown with weeds...and overrun with rats". A tactful note was sent, reassuring them that a balance between various needs was being attempted. There was, however, some concern about the rats, which were indeed present in some numbers. Eventually, it was realised that the problem was largely



due to visitors feeding the birds, especially one person who was feeding several loaves of bread daily to the pigeons. When he was persuaded that the pigeons could look after themselves, the rat problem was over.

Perhaps the lesson to be learned is that the entire management regime of this urban wildlife oasis was in danger of being pushed towards excessive tidiness because a problem with rats had been unfairly linked with eco-friendly management. The fact that pigeon-feeding was at the root of the problem is interesting but is of course not relevant to our previous article, which concerns the use of properly formulated food in purpose-made feeders.

new record for the City of Nottingham

The Nottinghamshire Wildlife Trust has reported that two females of the brown argus butterfly (*Aricia agestis*) were found for the first time in the city area, at Colwick Country Park. Other sightings have shown that this species is extending its range within the county. As Nottinghamshire is close to the northern limit of this species in Britain, its increasing distribution could be due to climate change. It probably needs a climate warm enough to sustain at least two broods per year; in southern Europe it manages to fit in three.

esmoulin's whorl snail faces new site development

This small snail (*Vertigo moulinsiana*) acquired a certain notoriety during the confrontations between conservationist activists and the British government over the Newbury bypass in southern England. Its presence on the bypass route did not prevent the road from being built, and indeed it was slightly discredited as an emblem because it proved to be slightly more widespread than perhaps it had been portrayed by some activists.

A large population of *V. moulinsiana* was recently found by members of the Conchological Society on the National Trust's Cottisfont Estate in the Test Valley, Hampshire (south of the Berkshire route which became part of the Newbury bypass). Oddly enough, this site is earmarked for development, but the Trust hopes that the plans can be adapted so as to protect the snail's sedgebed habitat.

Dorset West Moors: new dragonfly habitats in the aftermath of the 1976 drought

Among the many areas of southern English heathland that went up in smoke during the long hot summer of 1976 was the West Moors Ministry of Defence site in Dorset. Writing in the Ministry's conservation



magazine *Sanctuary*, Keith Powrie explains that it was decided after the fire to dig several large lakes so as to provide emergency water supplies in case of another blaze on this site, which houses a petroleum depot as well as a military training area. In view of other hot dry summers that have followed 1976, this was probably a wise move from a safety standpoint.

As far as wildlife was concerned, the new availability of aquatic habitats helped to earn parts of the Moors the status of a Site of Special Scientific Interest in the late 1980s. The SSSI has more recently been upgraded to a Special Protection Area and now forms part of an area protected under the RAMSAR Convention. The dragonflies are of particular interest, as they have found the acid fish-free lakes to their liking. There are records of 25 species of Odonata so far, including rare colour forms of the Scarce blue-tailed damselfly (*Ischnura pumilio*) and the Small red damselfly (*Ceriatron tenellum*).

National moth conservation project in England

This major new project has been launched by Butterfly Conservation with grant-aid from English Nature. It will concentrate on ensuring conservation action on England's most threatened moth species, about 40 of which have been identified as priorities in the UK's Biodiversity Action Plan. It will be run by two full-time staff: Mark Parsons and David Green, with advice being provided by Dr. Paul Waring and a steering group of experts including Dr. David Sheppard (English Nature), Dr. Phil Sterling (Dorset County Council) and Adrian Spalding.

It is hoped that the existing Scarce Moth Recording Scheme (SMRS) will be integrated with the new project, subject to renewed funding by the Joint Nature Conservation Committee. It is also hoped that the project, although England-based, will be linked with complementary schemes in the other parts of the UK where the SMRS already operates.

Paul Waring's annual report for 1998-99 includes some very interesting accounts of the fortunes of many species. These include a recent addition to Schedule 5 of the Wildlife and Countryside Act; the Fiery clearwing (*Bembecia chrysidiformis*). It was added to the schedule because of persistent collecting, together with its foodplant (*Rumex* sp.) at the one known British site in Kent. Surveys carried out by Tony Rouse over the last few years have shown that destruction of the foodplant has been continuing due to site management. It is now thought that site managers have been made aware of the requirements of this endangered moth but further monitoring of the situation is considered necessary.



Another story that is related to habitat loss is that of the White-botted pinion (*Cosmia diffinis*), which has suffered a massive decline throughout its range since Dutch elm disease destroyed much of the larval foodplant in the 1970s. Generally across southern Britain, records continue to be occasional and scattered, but in Huntingdonshire the moth is being recorded from woods where it had not been seen earlier and thus seems to be enjoying a resurgence in that county. Monitoring is being carried out by Barry Dickerson, the county moth recorder.

One of the moths which Paul Waring has highlighted in previous years as needing better habitat management is the Striped lychnis (*Eucullia lychnitis*). He drew attention to the need for more sensitive management of roadside verges containing the foodplant; Dark mullein (*Verbascum nigrum*). This plant is often cut down before the larvae have completed their development. Paul reports that both Buckinghamshire County Council and the Hampshire & Isle of Wight Wildlife Trust have made arrangements for favourable management on key roadside verges. Also in Buckinghamshire there have been several surveys of the larvae, most recently in 1996, to monitor the situation.

A national survey of the Striped lychnis in 1991 had previously drawn attention to the lack of recent records from Dorset and Wiltshire, and this is still the case. In some Wiltshire sites, large stands of the foodplant were found, but no larvae were present. In 1992 an artificial establishment trial was set up at Old Sarum in Wiltshire, but this appears to have been unsuccessful.

Another moth which is causing concern is the Orange upperwing (*Odia croceago*), which has not been reliably recorded in Britain since 1992. That record was in Pamber Forest (Hampshire) and it seems that the moth has disappeared from its traditionally known Surrey haunts. Paul Waring mentions that this species has attracted the special interest of the Conservation Working Group of the British Entomological and Natural History Society. A meeting of the Society at the Pamber Forest failed to detect any specimens, but the Group hopes to hear from anyone who can provide reliable records. Its co-ordinator is Mr. John Phillips, "Maytime", St. Peters Road, Northney, Hayling Island, Hampshire PO11 0RT.

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NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as *bona fide*. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

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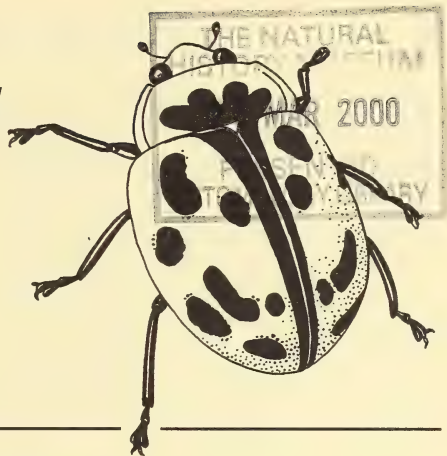
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INVERTEBRATE CONSERVATION NEWS



No. 31, February 2000

EDITORIAL

From their first mention in the pages of *ICN* about five years ago, Biodiversity Action Plans (BAPs) have, as anticipated, become a main vehicle for wildlife conservation in the UK. BAPs are undoubtedly a "good thing" because they set specific goals which encourage individuals and organisations to become more involved in conservation. Our commitment to these goals may, however, lead us to forget the many conservation issues that BAPs do not address.

By its very nature the listing of species for action plans is a very selective process, which tends to ignore the plight of unlisted ones (except indirectly). Selectivity may not appear to pose a serious limitation for taxa such as birds which consist of "manageably" small numbers of species. Within such taxa, species in need of special conservation measures can be identified through survey data and most if not all of them can be listed on BAPs. For most invertebrate taxa, we simply do not have adequate data on the status of their populations. In any case, the sheer number of apparently threatened species is too great for them to be listed in anything like the proportion of the invertebrate fauna that has been accorded BAP status.

A major saving grace of the BAP system in the UK is that it includes Habitat Action Plans (HAPs), which can be implemented without detailed data on individual species. Thus, HAPs offer better scope for broad-brush invertebrate conservation than species Action Plans. However, as in the case of species Action Plans, "unfair discrimination" can result from the definition and selection of the habitat-types. Also, as invertebrate conservationists have long recognised, the designation of individual sites (e.g. as nature reserves or as Sites of Special Scientific Interest) may have very limited value in the absence of other measures.



If such sites are not close to other similar habitats, their biodiversity is often destined to decline when species with limited dispersive ability undergo chance local extinctions and fail to recolonise.

The designation of things, whether they be species, habitat-types or sites, is probably an essential procedure for management. Without designation, administrators would not know where to allocate resources or to curtail potentially damaging activities. Designation should, however, be seen for what it is: a necessary but fundamentally flawed process which may lead to inappropriate action or to the serious neglect of undesignated species and sites. There is a constant but insufficiently recognised need to identify the deficiencies of designatory systems, especially as they relate to invertebrates and their habitats.

NEWS, VIEWS AND GENERAL INFORMATION

New funding for invertebrate conservation jobs in England

By the time that this issue of *ICN* is published, advertisements should have appeared for two period appointments concerned mainly with invertebrate biodiversity action plans (BAPs). It is hoped that both appointments will be made in April. The first job, which is being promoted and funded by English Nature under its Species Recovery Programme, is intended to facilitate linkages between the various national and local organisations involved in Action Plans for species or habitats and in relevant research. Although the post-holder (who will probably be based at the Natural History Museum in London initially for three to five years) will be dealing primarily with BAP species and habitats, it is hoped that he or she may also be able to help co-ordinate more general invertebrate survey action in England.

The other post is concerned primarily with recovery plans for individual species included in the UK's priority BAP list for which Action Plans have not yet been set up due to lack of prospective "Lead Partners". The appointee, who is expected to be based (at least for the first part of the three-year term) at the Bedfordshire headquarters of the RSPB, will manage the work of contractors and volunteers on a specified range of species. For support of the voluntary contribution, additional funding is being provided by the relevant government department (DETR).

As with the English Nature co-ordination post, it is hoped that the "Biodiversity Challenge" appointment will help to promote a wider interest in invertebrate conservation, even though it is primarily concerned with a small selection of species. The post is being set up at



the instigation of three members of the "Biodiversity Challenge Group": the Royal Society for the Protection of Birds (RSPB), Butterfly Conservation and the Wildlife Trusts. Of these, the RSPB is providing half of the main funding, jointly with English Nature (EN). A Steering Group with representation from EN, the above three Biodiversity Challenge partner-organisations and the Joint Committee for the Conservation of British Invertebrates will guide the project.

The provision of these two BAP-related posts represents a very welcome addition to the funding of invertebrate conservation in England, and it is to be hoped that the posts can also link into projects elsewhere in the UK. On the other hand, the need to attract funding for the mainstream requirements of invertebrate conservation remains paramount. Funding organisations therefore need to be aware that BAP species represent a tiny and rather unreliably selected tip of an iceberg as far as invertebrates are concerned.

New guidelines for organisers of local Biodiversity Action Plans in the UK

As discussed in our editorial, the inclusion of Habitat Action Plans (HAPs) in the UK's BAP system provides openings for the broad-brush approach that is needed for conserving the generality of our invertebrate fauna. In order to help local groups develop their HAPs, the Joint Committee for the Conservation of British Invertebrates (JCCBI) asked two of its members – Derek Lott and Alan Stubbs – to prepare a set of guidelines on a number of key habitat-types. The guidelines were drafted last year and should, it is hoped, be issued soon by the JCCBI.

The guidelines cover nine habitat-types that are not covered by existing national plans but have particular value for invertebrates and deserve to be identified as priority habitats in areas where they are present. The authors summarise the reasons why each of these habitat-types is important and list the most significant invertebrate and other taxonomic groups which depend on it. They also state the key issues concerning the threats to the habitat-types and the opportunities for local action. Also, for each habitat-type, there is the name of a contact who may be able to supply further advice, specimen plans and lists of key species.

The nine habitat-types covered in the guidelines, with brief extracts from the information, are as follows:

- *Mature trees*: these are included mainly because of their value for deadwood invertebrates, especially beetles, spiders and two-winged flies. (The most relevant national HAP is the one for "Lowland Wood-pasture and Parkland HAP".)



- *Springs and associated flushes*: these allow interesting flora and fauna to build up over time, especially when they form a spring-line where an aquifer surfaces. Unfortunately, their value for biodiversity – especially for soldier flies, crane-flies and water beetles – is poorly recognised by many conservation bodies.
- *Exposed river sediments*: defined as seasonally submerged areas of shingle, sand and silt, these are breeding grounds for a huge number of specialised invertebrate species. The habitats have been widely destroyed or damaged through management of rivers and adjacent land. Depending on the type of river, relevant national HAPs include those for “large rivers” or for “fast-flowing streams”.
- *Floodplain wetlands*: these include swamps, marsh and wet woodland in undisturbed abandoned river channels and ditches. They can be of great value for invertebrates such as beetles, flies and snails, even though they are often too small or shaded to be of much interest for birds.
- *Small ponds*: field ponds, woodland ponds and *Sphagnum* pools can provide distinctive habitats for invertebrates such as dragonflies, beetles, caddisflies, water bugs, flies, leeches, flatworms, spiders and snails. Losses and degradation need to be redressed by the creation of new ponds as well as better management of existing ones.
- *Fast-flowing streams*: these are of value (especially for mayflies, stoneflies, caddisflies, beetles and flies) where they contain natural riffle and pool systems and a gravel substrate, or where they include ravined sections running over exposed bedrock and associated moss carpets. The need is to restore the natural meandering courses of unsympathetically modified watercourses.
- *Post-industrial and urban demolition sites*: past use of such sites often gives rise to quite persistent mosaics of varied vegetation and bare ground which are of especial importance for pioneer invertebrates, including bees and wasps, beetles, bugs, flies, grasshoppers and spiders. Educational and recreational opportunities co-exist with biodiversity (but see recent issues of *ICN* regarding development of “brownfield sites”).
- *Soft-rock cliffs*: limestone, sandstone and clay cliffs can support an outstanding invertebrate fauna, especially bees and wasps, beetles and flies. Critical features for most species are (1) a pace of erosion that allows the development of a mosaic of bare ground and



pioneer vegetation and (2) seepages on landslip areas. Cliff stabilisation and nearby water abstraction need to be avoided on important sites.

Freshwater seepages on saltmarshes: although saltmarsh is well recognised as a valuable habitat, attention must be drawn to the special invertebrate fauna of freshwater seepages onto saltmarsh. This habitat is highly localised and, like much of the higher tidal zone, particularly vulnerable to adjacent land uses (e.g. involving nearby drainage and water abstraction, pollution or unsuitable siting of sea walls etc).

Amateur Entomologists' Society Area Representatives Scheme

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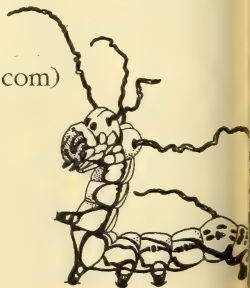
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Brownfield site developments: the debate continues

The high projections for new housing needs in the UK (about 4.4 million within the next two decades) continue to alarm environmental groups. While most are united in arguing for a lower target, especially in SE England, there is some divergence of views on greenfield versus brownfield developments. Few, apart from those who stand to gain financially, are keen on greenfield developments as they extend urban sprawl into the countryside and can have severe effects on landscape and amenity. Greenfield development can of course also be very damaging to wildlife habitats, but we need to bear in mind that a sizeable proportion of greenfield land is "arable desert", whereas many brownfield sites have become oases of wildlife within residential and industrial areas.

The ecological value of brownfield sites has figured widely in discussions and magazine articles within the wildlife conservation movement. However, groups with a wider remit such as Friends of the Earth (FoE) and the Council for the Protection of Rural England are still very much hoping that brownfield development could accommodate as much as possible of the housing demand. This view allows them to campaign against greenfield development, not very much troubled by fears that there could be serious environmental degradation due to brownfield, just as much as to greenfield developments.

It is the plight of a bird, the Black redstart (*Phoenicurus ochruros*), that is highlighted in a recent pro-brownfield article in "Urban Wildlife News" (Nov. 1999), published by English Nature. This nationally rare bird benefited very much from the rubble-strewn bomb sites of post-war London, but these habitats became much reduced in later years. In view of continued brownfield developments, the London Wildlife Trust and other organisations have issued guidelines for impact assessments and for the provision of habitat within new developments. Such advice will be of benefit for invertebrates, but it is important to be aware of the requirements for invertebrate habitat surveys, as summarised in a JCCBI code, prepared by Steve Brooks, and now available from AES Publications.

Another article on the brownfield issue appears in the magazine of the Staffordshire Wildlife Trust. It features Berry Hill, a post-industrial site in the English Midland city of Stoke-on-Trent. This 320 acre (130 ha) site was rescued from a proposed housing development by campaigners who saw it as their only piece of local "greenscape"; hence the title of the article..... "When Brown is Green". Taking up this theme, the Trust's Director, Guy Corbett-Marshall, entitles his comment column "Should Development Plans be Set in Stone?"



SITES AND SPECIES OF INTEREST

Biodiversity Action Plans in Berkshire

A recent newsletter of the Berkshire Network for Invertebrate Conservation reports on a study to identify which of the national BAP species are resident in this county of SE England. This was necessary for the development of the Local Biodiversity Action Plan (LBAP) which is a requirement for the local authorities in Berkshire, as in other parts of the UK. An inventory of the species resident within a given area can be hard to compile, as the information may be widely scattered among recording schemes, specialist publications and personal records.

The study for Berkshire was commissioned by the local naturalists' trust (BBONT). The resulting report¹ details all the species listed on the national BAP for which evidence of their occurrence in Berkshire (modern county) could be found, giving brief details of dates and sites. It shows that, of the c. 485 terrestrial invertebrate species listed in the UK BAP, 118 (24%) have been recorded in Berks (another four have unconfirmed or dubious records in Berks). Among the 118 species, 56 (47%) may be extinct in the county. These include the mayfly *Heptagenia longicauda*, not recorded since 1868 and the Small Pearl-bordered fritillary butterfly (*Clossiana selene*) recorded in the early 1990s but not reliably recorded over the last four or five years despite searches at known sites.

As extinction is hard to prove or disprove, even for the more conspicuous species, there is a need to survey the last known sites to see if any of the apparently extinct ones still occur. For those found to be surviving in the county, further recording should help to find any strong colonies which could be monitored and ecologically studied so as to provide a basis for conservation strategies.

Compared with the neighbouring counties of Buckinghamshire and Oxfordshire, Berks seems to include a higher proportion of BAP species that have become extinct since earlier records were made^{2,3}. On the other hand, the county has a markedly higher proportion of BAP species which are either unknown from anywhere else in the UK, or known from very few other UK sites. Most of these belong to the extraordinary fauna of deadwood invertebrates at Windsor Forest and Great Park.

Copies of the Berkshire BAP invertebrate report are available on paper from the Berks, Bucks and Oxon Wildlife Trust (The Lodge, 1 Armstrong Road, Littlemore, Oxford, OX4 4XT; tel: 01865 775476), or



a disk from Martin Harvey, Co-ordinator of BNIC at: 10 Kiln Ride, Upper Basildon, Berkshire, RG8 8TA (Home tel.: 01491 671889, Work tel. 01703 613636; email martin@kitenet.freeserve.co.uk

Harvey, M.C. (1998). *Biodiversity Action Plan invertebrates in Berkshire*. Unpublished report to BBONT, Oxford.

Harvey, M.C. (1998). *Biodiversity Action Plan invertebrates in Buckinghamshire*. Unpublished report to BBONT, Oxford.

Harvey, M.C. (1998). *Biodiversity Action Plan invertebrates in Oxfordshire*. Unpublished report to BBONT, Oxford.

The bee-fly *Thyridanthrax fenestratus* rediscovered in Berkshire

Thyridanthrax fenestratus is a rare bee-fly associated with heathland in the south of England, where it parasitises the nests of the sand wasp *Ammophila pubescens*. According to the newsletter of the Berkshire Network for Invertebrate Conservation, the only Berkshire records for the fly were many years old until Matt Smith rediscovered it at a county trust reserve at Wildmoor Heath near Bracknell in 1998. It was seen again at the same reserve in 1999 by Martin Harvey. This species is one of three flies listed in the national Biodiversity Action Plan for which the British Entomological and Natural History Society (BENHS) is taking the lead for conservation work. The BENHS has set up a standardised walk across varied heathland to identify the highest area of population of the fly at Thursley Common National Nature Reserve in the neighbouring county of Surrey.

Another bee-fly, *Bombylius minor*, is among the three species being studied by BENHS. The main study sites are in the southern county of Dorset, but it has also been found on the Isle of Man. The third species is the wasp-mimicking hoverfly *Chrysotoxum octomaculatum*, which, like *T. fenestratus*, has been seen at Thursley Common.

The BENHS would like to encourage further work on these flies in 2000, both to gain additional distribution records and to find out more about their behaviour and ecology. Further details of this project can be obtained from the BENHS Conservation Working Group, c/o Stephen Miles, 469 Staines Road West, Ashford, Middlesex, TW15 2AB.

A rare bumble-bee and the Hornet robber fly on a development site in Hampshire

It is reported in the newsletter of the Hampshire Network for Invertebrate Conservation (Issue 2, December 1999) that these two Biodiversity Action Plan species (*Bombus humilis* and *Asilus crabroniformis*) have been discovered at a chalk-pit on Portsdown Hill. Unfortunately, the discoveries were made only after the sites concerned had already been designated for development without any formal designation for wildlife conservation. However, Debbie Wicks reports that a plan for damage-mitigation has been prepared by entomologist



Mike Edwards and accepted by the developers and Fareham Borough Council. The development will involve the re-alignment of the chalk face in an old quarry, but the revised plan is to re-seed the face with a mixture of plants attractive to bumblebees. It remains to be seen whether the two insects concerned will survive on the site, but at least their BAP status has counted for something.

Species recovery for the field cricket in England

The field cricket, *Gryllus campestris*, is at the edge of its climatic range in southern England and is therefore very dependent on the warm chalk grasslands which form its natural habitat there. Owing to habitat destruction, the insect eventually became confined to one site in the south-eastern county of Sussex, but is now being released from captive breeding to other suitable sites. Following apparently successful releases in Surrey, to the north of Sussex, a further release of 500 specimens has taken place further south-west, on downland near Newport on the Isle of Wight. According to a report in the newsletter of the Hampshire Network for Invertebrate Conservation (Issue 2, December 1999), the last naturally occurring population at this site was observed in the 1930s.

The "Action for moths" project

Butterfly Conservation has been appointed the Lead Partner for the UK Government's Biodiversity Action Plan (BAP) for the majority of the "Priority" moth species. A three year project was started in May 1999, funded by English Nature (EN) and Butterfly Conservation (BC), to oversee the implementation of these Action Plans. This initially, but not exclusively, concentrates on England.

Action Plans have been published for species designated as Priority Species. The Action Plan for each species has a number of objectives and targets, such as maintaining the population size of the species at all known sites and carrying out research to clarify its ecological requirements.

The Priority Species covered by the Action Plans are as follows:

Ascometia caliginosa (Reddish Buff)
Aspitates gilvaria (Straw Belle)†
Atetis pallustris (Marsh)†
Bembecia chrysidiformis (Fiery Clearwing)
Calophasia lunula (Toadflax Brocade)†
Catocala promissa (Light Crimson Underwing)†
Catocala sponsa (Dark Crimson Underwing)†
Coleophora tricolor (Basil Thyme Case-bearer)
Coscinia cribraria (Speckled Footman)
Cosmia diffinis (White-spotted Pinion)†

Mythimna turca (Double Line)†
Noctua orbona (Lunar Yellow Underwing)*
Oria musculosus (Brighton Wainscot)
Paracolax tristalis (Clay Fan-foot)†
Paradiarsia sobrina (Cousin German)
Pareulype berberata (Barberry Carpet)
Pechipogo strigilata (Common Fan-foot)
Phyllodesma ilicifolia (Small Lappet)
Polia bombycina (Pale Shining Brown)
Polymixis xanthomista (Black-banded)†



<i>Colophora pendularia</i> (Dingy Mocha)†	<i>Rheumaptera hastata</i> (Argent and Sable)*
<i>Cycla oo</i> (Heart)	<i>Schrankia taenialis</i> (White-line Snout)*
<i>Erionia paralellaria</i> (Dark Bordered Beauty)	<i>Scotopteryx bipunctaria</i> (Chalk Carpet)*†
<i>Euastroma reticulatum</i> (Netted Carpet)	<i>Semiothisa carbonaria</i> (Netted Mountain Moth)
<i>Adena albimacula</i> (White Spot)†	<i>Shargacucullia lychnitis</i> (Striped Lychnis)
<i>Eliphibobus reticulata</i> (Bordered Gothic)	<i>Siona lineata</i> (Black-veined)
<i>Emmaris tityus</i> (Narrow-bordered Bee Hawk-moth)	<i>Thetidia smaragdaria maritima</i> (Essex Emerald)*
<i>Hydraecia osseola bucherardi</i> (Marsh Mallow)†	<i>Trichopteryx polyommata</i> (Barred Tooth-striped)*
<i>Hydrelia sylvata</i> (Waved Carpet)*†	<i>Trisateles emortualis</i> (Olive Crescent)
<i>Myapena rostralis</i> (Buttoned Snout)	<i>Tyta luctuosa</i> (Four-spotted)
<i>Alea dilutaria</i> (Silky Wave)†	<i>Xestia alpicola alpina</i> (Northern Dart)
<i>Alea ochrata</i> (Bright Wave)	<i>Xestia ashworthii</i> (Ashworth's Rustic)*
<i>Alia croceago</i> (Orange Upperwing)†	<i>Xestia rhomboidea</i> (Square-spotted Clay)*†
<i>Alia zonaria</i> (Belted Beauty)*	<i>Xylota exsoleta</i> (Sword Grass)†
<i>Gephila cracca</i> (Scarce Blackneck)†	<i>Zygaena loti</i> (Slender Scotch Burnet)
<i>Enyoa murinata</i> (Drab Looper)	<i>Zygaena viciae</i> (New Forest Burnet)
<i>Enyoa alpinum</i> (Scarce Merveille du Jour)	

Action Plan awaiting publication.

Projects on selected species(†) from this list have already started. Most of these are targeted at establishing current distribution and BC is encouraging individuals to record sites that may be suitable for the species concerned, but from which there is no recent record. This will help to establish priorities for future work. Projects on other Priority species for which BC is Lead Partner are expected to be started in due course. A few of the species listed are also covered by the Species Recovery Programme through EN or have projects supported by Scottish Natural Heritage or the Countryside Council for Wales. A Steering Group is providing guidance for the project and comprises a number of specialists, including Dr Paul Waring who is acting as an adviser to Butterfly Conservation.

Anyone who would like to help with any of these projects on the species recorded from his/her region(s) of interest should please contact Mark Parsons or David Green at Butterfly Conservation, Conservation Office, PO Box 444, Wareham, Dorset, BH20 5YA.

Invertebrates at Windsor Forest and Great Park

Members of the Berkshire Network for Invertebrate Conservation have been recording invertebrates in this ecologically very important area of south-east England. During a moth-recording evening in 1998, the very rare crane fly *Ctenophora ornata* was rediscovered in the area. This spectacular insect subsequently featured in one of the Crown Estate's newsletters. Also an impressive number of rare beetles have been recorded by a member, Tom Harrison, while a small staphylinid beetle found by Bernard Verdcourt is a possible candidate for a first British record. Further recording and monitoring of invertebrate populations is being focussed on the Bear's Rails area of Windsor Great Park, which



has been earmarked for habitat management such as the removal of exotic tree species so as to help restore the area to high quality pasture woodland.

Welsh decline in common butterfly species

A study in North Wales has shown a reduction in the flight areas of common butterflies, comparing 1901 records with recent ones. The work, conducted by Matt Cowley and co-workers from Leeds University with members of the Institute of Terrestrial Ecology and of Butterfly Conservation, was written up in Volume 266 of the Proceedings of the Royal Society of London and summarised in the Winter 2000 edition of *Butterfly Conservation News* (the magazine of Butterfly Conservation). The summary shows a list of thirteen species that were surveyed within an area of 35 km² in the Llandudno district. These all showed reductions in flight area, ranging from 9% for the Dingy Skipper (*Erynnis tages*) to 91% for the Small Copper (*Lycaena phlaeas*). This trend is attributable to altered land use practices, which have reduced the amount of habitat.

It is widely perceived that changes in land use have led to great reductions in the habitats of a wide range of invertebrates, and so the results of this study should not come as a surprise. They do, however, represent some "hard data" to support general assumptions. They also serve as a reminder that a considerable amount of habitat loss and population decline may occur before the situation gets so bad that the broad geographic distributions of species begins to shrink or fragment. These more wide-scale effects tend to occur sooner among species that have long been rare or near the edge of their climatic ranges, and indeed seven butterflies have reportedly become extinct in the Llandudno area since 1901. It may, however, be only a matter of time before regional extinctions show up among common species, especially those that do not disperse very far from isolated habitats.

Superimposed on the effects of habitat loss and degradation are the effects of climate change. Global warming is thought to be responsible for recent expansions in the range of some invertebrates in Britain, including butterflies such as the Speckled Wood (*Pararge aegeria*), Essex Skipper (*Thymelicus lineola*), Brown Argus (*Aricia agestis*), Ringlet (*Aphantopus hyperantus*) and Small Skipper (*T. sylvestris*). According to the report in "Butterfly News", the last two of these have expanded their populations in the Welsh study area, unlike the other species studied. It is, however, pointed out in an accompanying article that the poleward expansion of some species on the European



mainland has been accompanied by a retraction at the southern edges of their ranges. Also, it seems likely that some species whose potential habitat sites are too isolated in Britain may fail to spread northwards.

The Wasp spider in southern England

A place of pride on the front cover of the Wiltshire Wildlife Trust magazine for January 2000 was given to the Wasp spider, *Argiope bruennichi*, which has been recorded for the first time in this southern English county. The site was the Trust's Coombe Bissett Down Nature Reserve near Salisbury, where 14 females were found in the tall grassland. The adult females are fairly spectacular by British standards, being slightly larger and more elongated than the Garden spider and striped with wasp-like markings. It has been suggested that this is one of those warmth-loving invertebrates that is expanding its range due to global warming, having apparently spread as far north as the north-midland county of Derbyshire from a UK range that was previously restricted to warm southern coastal areas.

The main population is still concentrated on the south coast and the Thames Estuary, but the Hampshire Network for Invertebrate Conservation observes in its December 1999 newsletter that there is clear evidence of a spread to inland parts of Hampshire.

The distribution of the spider will be shown in a national atlas of spiders being prepared by the British Arachnological Society.

Large blue butterfly extinction due to collectors?

It is now over twenty years since the Large Blue butterfly (*Maculinea* sp.) became extinct in the UK, before later being reintroduced with considerable success after its ecological requirements became more fully understood. There was some debate about the reasons for its extinction, with varying emphasis on the degradation of habitat versus the effects of habitat isolation and consequent disruption of normal recolonisation and gene flow.

It was clear that the insect had been the target of collectors, perhaps even into recent decades when the collection of endangered species became increasingly frowned upon by reputable entomologists. Although collecting may have had an impact on already precarious colonies, there was never much serious suggestion from invertebrate biologists that collection had played a significant part in the demise of the native UK population. It is therefore a little surprising to read in the Winter 1999 issue of "*Birds*" (the mainly excellent magazine of the Royal Society for the Protection of Birds) a statement that the butterfly was "reduced by collectors to two colonies by 1970".

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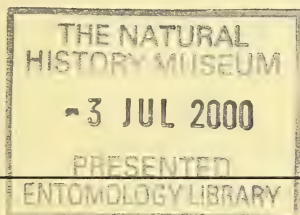
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INVERTEBRATE CONSERVATION NEWS



No. 32, June 2000

EDITORIAL

Two articles in this issue of *ICN* highlight the importance to conservation of international regulations and conventions. The first explains how an alteration in European agricultural subsidy regulations could lead to the destruction of scarce wildlife habitats on farmland; the other warns of a drastic relaxation in the already weak rules that control the release of veterinary drugs into the environment.

International agreements, regulations and subsidy schemes have some potential to encourage "eco-friendly" land use, particularly by withdrawing incentives that favour agricultural production at the expense of wildlife habitats, water quality and soil structure. In practice, however, the balance has been very much towards encouraging production. This remains the case in the European Union, where "Agenda 2000" has switched only a miserly 2% of agricultural subsidies towards "agri-environment" schemes. Even by the year 2006, the figure will have risen only to 4.5%. Without beneficial frameworks of regulation or subsidy, individual countries will find it very difficult to "go it alone" by denying free rein to their own farmers, while other countries profit through unsustainable practices.

Although some international regulations and agreements are intended to encourage sustainable development, the current trend is sadly for conservation issues to be sidelined in favour of commercial interests. As shown by recent moves within the World Trade Organisation, farming practices could be greatly affected by international agreements and "globalisation", in many cases to the detriment of biodiversity both in wildlife and crop species. Also, there are very important issues that relate to people and their rights to continue traditional farming practices.



International regulations include conventions on intellectual property rights, which have important implications for biodiversity and for naturalists and biologists. Although it is entirely proper that individuals and companies should be allowed to profit by inventions, it seems essential to have ethical standards which distinguish between true inventions and the unfair assertion of exclusive rights over things that occur naturally. In particular, very serious questions have to be asked when governments allow patents to be granted on naturally occurring organisms or their DNA.

Certain countries, mainly in the developing world, are now very concerned about "intellectual piracy", whereby western biotechnology companies seek to patent the uses of species of their fauna and flora, even when those uses have been practised by indigenous peoples for generations. As a protective measure, the governments of such countries may impose draconian controls on the taking of specimens even by amateur naturalists.

With the rapid development of biotechnology and of e-commerce, it seems virtually impossible to predict the balance that may eventually be struck between the interests of commercialism and of conservation. Thus it is by no means certain that conservation bodies will keep the influence that they have recently gained at a national level. The question of influence is all the more uncertain for invertebrate conservation, which remains largely (though not entirely) a Cinderella issue even in relatively enlightened countries like the UK. The sooner that we can break away from that mould, the better.

NEWS, VIEWS AND GENERAL INFORMATION

Access to land is an emotive issue in the UK, where members of the public have the right to set foot on only a small percentage of the total land area. Some other densely populated European countries, such as the Netherlands, have even harsher restrictions. Others with a less dense population allow greater access, particularly in the case of Sweden, where access is generally open, subject to the privacy of the gardens around private houses and the need to avoid damage to crops and other property.

Restrictions on access tend to arouse two opposing feelings among people with an interest in wildlife. On the one hand, it can be very frustrating to be denied the opportunity to enter sites for the study of wildlife while, on the other hand, there is sometimes cause for concern



about the possible adverse effects of public access on wildlife and habitats. Increased access can lead to excessive trampling of certain types of fragile habitat as well as the direct disturbance of some types of animal, mainly vertebrates. An additional cause for concern is occasioned by the possibility that people entering land might seek compensation from the owners for injury caused by hazards. The fear of such claims could lead owners to destroy valuable habitats, such as standing deadwood in trees, which could be perceived as hazardous.

The British Government's intention to create a right of access to uncultivated open country met considerable opposition from landowning organisations, who preferred the existing voluntary approach of providing "permissive" access. Eventually, however, the "Countryside and Rights of Way Bill" was prepared and (at the time of writing) is now on the way to becoming an Act of Parliament. Despite some concerns over habitat protection, it looked like relatively good news for people who needed access to land to study wildlife; indeed here was good news for deadwood enthusiasts when the Government announced that landowners' liability for accidents to visitors would be relaxed. However, some potential problems became apparent in the detailed wording of the Bill.

The main problem is that the Bill contains certain clauses that could curtail the ability of naturalists and biologists to carry out field studies and recording. The clauses in question are designed to safeguard wildlife and the property of landowners. If, however, they were to be taken literally, they would severely compromise the recording of taxa (e.g. most invertebrates) that require close examination for identification.

The clauses in question are intended to safeguard landowners' property by prohibiting the taking or wilful damaging of any plants or animals. Some of the descriptions of plants and animals that must not be damaged or taken could be interpreted as not including invertebrates, but there is a catch-all clause that includes virtually anything. Similarly, there are prohibitions against the carrying of apparatus for the capture of animals, which is probably meant mainly to refer to traps for vertebrates but which could certainly be interpreted as including things such as nets and specimen tubes for invertebrates. An "offender" could be made to leave the property in question and prevented from returning at any time on the same day. More seriously, the same restrictions could become enshrined in local bylaws with the effect that "offenders" could face charges in a Court of law.



The potentially troublesome clauses have been brought to our attention by Alan Stubbs, one of the UK's leading invertebrate conservationists. He is very concerned about the impact that adverse interpretation of the law could have on the ability of biological recorders to do the work needed for Biodiversity Action Plans. He has pointed out that the restrictions would apply not only to land which is currently "closed" but also to land which has *de facto* access, despite having no official provision for access. Under the auspices of the Joint Committee for the Conservation of British Invertebrates, a discussion paper prepared by Alan has been circulated. Copies have been sent to a range of biological societies, to the UK statutory conservation agencies and to Environment Minister, Mr. Michael Meacher.

It is almost certain that any change in the wording of the Bill itself would be rejected on the grounds that it might weaken the rights of landowners, who are already unhappy about the Bill in principle. Thus, the approach that is recommended in Alan Stubbs' paper is that the Government should issue interpretive guidelines which should make it clear that recorders of invertebrates, plants and fungi should not fall victim to any inappropriate interpretation of the clauses intended to safeguard landowners' property. It is hoped that some suitable responses will have been received in time for reporting in the next issue of *ICN*.

Internet discussion and e-mail groups for deadwood and moths

In the March 2000 issue of the Ancient Tree Forum Bulletin, Simon Grove of Rainforest CRC, James Cook University, Cairns, Australia reports the formation of a discussion list entitled "Dead Wood Ecology and Management". The list was formed following a symposium "Dead Wood Ecology and Management in Western Forests" in Reno, Nevada in November 1999. It is open to all who want an outlet for discussing dead wood ecology and management issues.

The host site (http://www.egroups.com/group/dead_wood) contains a list of links to deadwood resources and a calendar of events. The discussion list currently has about 50 members.

Simon's instructions for joining the discussion list are to do one of the following:

- (1) Directly go to the Dead Wood Ecology and Management Discussion list at http://www.egroups.com/list/dead_wood/info.html and select the JOIN button;



- 2) Directly go to the Dead Wood Ecology and Management Discussion list at http://www.egroups.com/group/dead_wood/ and under "Members" select "New Users": "Register Here"
- 3) Send an e-mail to dead_wood-subscrib-@egroups.com
- 4) If you have problems with the above, please send an e-mail message to the list moderator at (dead_wood-owner@egroups.com or jeff.ston-@gems7.gov.bc.ca) indicating your desire to join the discussion list.

Another recent development was the trial establishment of an e-mail newsletter on UK Biodiversity Action Plans for moths on the "priority" list. This began in the summer of 1999, with recording hints and more-or-less weekly notes on the current flight periods of the moths concerned. David Green (dgreen@butterfly-conservation.org), who runs this newsletter from Butterfly Conservation, intends to continue it this season.

Arable Area Payments: new rules could harm farmland wildlife

Under the European Union's Common Agricultural Policy, arable farmers receive subsidies that are calculated by land area. In the UK, the total area of an arable field, including hedgerows and headlands, has until now been eligible for payment. It has, however, been announced that payments will in future only apply to the area of the crop, plus a maximum of a two metre-wide border. The result of enforcing this limitation would be to penalise any farmer trying to encourage wildlife by leaving broad hedges and "conservation headlands". These are the kinds of measures that have been developed at the Game Conservancy (based at Fordingbridge in southern England) and that have been supported under the Countryside Stewardship scheme. The benefits to wildlife also result in larger populations of game-birds, which is the economic basis of the Conservancy's work.

Many years of work by research workers, conservation bodies and enlightened farmers would be undermined if the new interpretation of regulations were to be implemented. When considering the impact of the proposed change on a Europe-wide scale, it is important to realise that lowland Britain contains a high proportion of the hedgerows in the EU, even in the aftermath of the trend of recent decades towards "prairie" farming. On the Continent, wire fences in place of hedges and lack of hedges on field-highway boundaries are common sights.

The principal conservation bodies are making their views known to the UK government but it remains to be seen whether sense will prevail. Individual naturalists should also play their part by writing to their members of parliament.



Ivermectin and other drugs affecting non-target invertebrates

As pointed out in previous *ICN* articles (see *ICN* 26 and 30), the anti-helminthic ("de-worming") drug ivermectin is highly toxic to invertebrates and has especially serious effects on populations of species dependent on mammalian dung. Although the dung breaks down extremely slowly as a result, it may eventually release ivermectin into the soil and watercourses; almost certainly with harmful effects on a wider range of organisms. Many other drugs, especially antibiotics, give similar cause for concern. Also, there is a concern of another kind; namely that the excessive release of antibiotics into the environment tends to lead to the emergence of drug-tolerant strains of pathogenic bacteria, such as the organism that causes tuberculosis.

In the European Union (EU), legal controls on drugs that are released into the environment via veterinary use are less stringent than controls on other products that are classed as pesticides. This situation is clearly worrying as far as non-target organisms are concerned, but far worse is to come, according a "*New Scientist*" article by Fred Pearce (19 February 2000).

Pearce reports that Europe's veterinary scientists have decided on a drastic relaxation of the one EU regulation that controls the release of farm drugs into the environment. This regulation does not impose any ceiling on the amount of drugs allowed into soils, but it does require an environmental impact assessment on any drug that is likely to accumulate at more than 7.5 grams per hectare on farmland. Pearce states that, as a result of an agreement reached last year between veterinary regulators from the EU, USA and Japan, this threshold is to be raised tenfold to 75 grams per hectare.

Pearce also states that Britain's Environment Agency, according to a spokesman, had not been involved in the decision to relax the threshold. It seems that the EU veterinary scientists have accepted an American summary of data, showing the effects of antibiotics on earthworms, micro-organisms, plants and aquatic life. But the problem of antibiotic tolerance developing in bacteria formed no part of the ecotoxicology package. Also, in view of the fact that some drugs have much greater non-target toxicity than others, the value of a blanket threshold for all drugs seems highly questionable.

According to Pearce, more than 10 000 tonnes of antibiotics are used in the European Union each year; roughly half for veterinary use. At a recent conference at Cranfield University, Danish and Swiss researchers reported the presence of 68 types of drug in soil and water samples,



most of which were from pig manure. Some soils on to which pig waste was spread contained the antibiotic tilosin at concentrations up to 40 times the current threshold for investigation.

New Lepidoptera Liaison Officer for UK Wildlife Trusts

The Wildlife Trusts have created the above new position and have appointed Martin Harvey to fill it. Martin, who is employed by the Hampshire and Isle of Wight Wildlife Trust is of course very well known to *ICN* readers as the former Habitat Conservation Officer for the AES. He can be contacted at the Hampshire Trust's offices at 8 Romsey Road, Eastleigh, Hampshire SO50 9AL (e-mail: MartinH@hwt.org.co.uk).

Addresses of some county invertebrate groups in England

As in some recent issues of *ICN*, some of our news items and notices of conservation-related field meetings are taken from the pages of the bulletins and newsletters of local groups that have been formed over the last few years to help promote the study and conservation of the full range of invertebrate taxa. The following list summarises the names and contact addresses of such groups which have supplied us with information.

- Berkshire Network for Invertebrate Conservation,
c/o Martin Harvey, 10 Kiln Ride, Upper Basildon, Berkshire, RG8 8TA.
e-mail martin@kitenet.freemove.co.uk)
- Devon Invertebrate Forum,
c/o Peter Smithers, Room 703, Davy Building, University of
Plymouth, Drake Circus, Plymouth, Devon PL4 8AA.
Tel. 01752 232956; e-mail Psmithers@plymouth.ac.uk
- Gloucestershire Invertebrate Group,
c/o Keith Alexander, 14 Partridge Way, Cirencester, Gloucestershire
GL7 1BQ. Tel. 01285 651171
- Somerset Invertebrates Group,
c/o Pat Hill-Cottingham. Tel. 01458 250557
- Worcestershire Invertebrate Group,
c/o Geoff Trevis, 14 Old Coach Road,
Droitwich, Worcestershire, WR9 8BB.
Tel: 01905 774952





SITES AND SPECIES OF INTEREST

Legal protection for moths: tough on collectors; soft on destroyers?

Acceptance of anti-collecting laws in the UK depends largely on the policy of giving full legal protection only to genuinely vulnerable species, which in most cases would not be collected by the scrupulous majority anyway. Sadly it is far easier to fall foul of the law in many other countries, in which long lists of species are scheduled for "protection" without recourse to adequate selective criteria.

It is often hoped that legal bans on collecting will have the indirect benefit of encouraging a willingness to protect the habitats of scheduled species. In cases where this benefit fails to materialise, it seems reasonable to ask whether the law is targeting the real threats to vulnerable species. Two such cases have been revealed in reports in the first issue (April 1999 - March 2000) of the *Lepidoptera Conservation Bulletin*, published by Butterfly Conservation. The reports concern two moth species listed in the UK on Schedule 5 of the Wildlife and Countryside Act (1981) and on the Priority list for Biodiversity Action Plans. The species are the Essex Emerald (*Thetidea smaragdaria maritima*), and Fisher's Estuarine moth (*Gortyna borelii lunata*).

The Essex Emerald was one of the original species to be scheduled when the present UK law was enacted. It is thought to have become extinct about ten years later, when sightings of its larvae ceased, but Dr Paul Waring was able to maintain the last remaining captive-bred British stock of the moth with a view to re-establishing it at suitable sites. According to Paul's latest report, the three sites that were thought to be potentially suitable have lost virtually all value as far as the Essex Emerald is concerned. Two of them have been so overgrazed that little now remains of the moth's foodplant, Sea wormwood (*Artemisia maritima*). The other site, a National Nature Reserve, has been so closely mown that the foodplant seems to have disappeared entirely.

Paul Waring thinks that overgrazing may have been a major factor in eliminating the last colonies of the moth, together with various other practices: the construction and maintenance of modern sea-walls, saltmarsh fragmentation, reclamation and development. Even while some of the sites may have remained suitable, they probably became too isolated, leading to problems such as inbreeding.



Unlike the Essex Emerald, Fisher's Estuarine moth gained legal protection in the UK only at the last quinquennial review of Schedule 5, in the wake of arguments from some entomologists that survey data did not justify a collecting ban. As mentioned in *ICN* 18, it is a mainly Mediterranean-Asiatic species which is extremely local in western Europe and, by the time of the quinquennial review, had been recorded only at six localities in the UK; all of them in the Hamford Water Estuary, Essex. The main threat was perceived to be the mowing of the sea walls where the foodplant, Hog's fennel, *Peucedanum officinale*, (itself a Red Data List species) grows. The need to develop a more sensitive mowing regime has been addressed by an experiment, which began in 1997 and is to continue until at least 2001. Also, under a local Biodiversity Action Plan, the distribution of the foodplant was mapped in 1999.

The bad news for *G. borelii*, as reported by Chris Gibson of English Nature, is that the habitat at the experimental mowing site was damaged in October 1999 by the dumping of dredging spoil. This was unfortunately done by the Environment Agency (EA) which, despite having co-operated in the setting-up of the experiment, had evidently failed to ensure adequate communication and consultation among its own staff. It might have been hoped that, with the legal protection of this moth, better efforts would have been made to avoid damage to its habitat; especially by a government agency. The damaged areas are being surveyed this year to assess the impact of the dumping.

Review of jumping spiders (Salticidae) in Gloucestershire, SW England

The Spring 2000 issue of the Gloucestershire Invertebrate Group's newsletter (edited by Dr Keith Alexander) includes a review of the county's jumping spiders by David Haigh. He briefly describes and comments on the habitat requirements of the thirteen species that have been recorded in the county. Amongst these *Bianor aurocinctus* has no currently known localities in Gloucestershire, with its previous occurrences having been vaguely recorded from "Forest of Dean"; any recent records would be welcomed. It is a small (3-5 mm diameter), dark species with a metallic sheen and a noticeable swelling of the femur and tibia of leg 1 in both sexes. It is found in short vegetation and amongst stones. Another species requiring confirmation, which



would bring the county list to fourteen, is *Evarcha arcuata*, which was tentatively recorded in the juvenile stage beneath heather at Wigpool, Forest of Dean in 1996.

The Castle Eden Argus Butterfly

Readers of the former "AES Conservation Group Newsletter" (ICN's precursor) may remember the news items about the Castle Eden Argus (*Aricia artaxerxes salmacis*) that were provided in the early 1970s by the late Tom Dunn, an outstanding naturalist and supporter of the Durham Wildlife Trust. This subspecies, also known as the Durham Argus, is distinguished by taxonomists from *A. artaxerxes artaxerxes* (the Northern Argus), which occurs in Scotland. Its habitat in County Durham seems fairly exacting, as it is found only on Magnesian Limestone grassland, which occupies a total of only 270 ha in the UK, 60% of which is in Durham and in Tyne & Wear. Also, the larval foodplant of the Durham population appears to be restricted to Rock-rose (*Helianthemum nummularium*), although other foodplants, such as various cranesbills (*Geranium* spp.) have been recorded elsewhere. Additional features of the habitat are nectaring sources such as birds-foot trefoil, thyme and clovers, together with tall vegetation for night-time roosts.

Some of the Durham colonies of the butterfly lie on the coastline, much of which is made up by the northernmost end of the narrow north-south outcrop which the Magnesian Limestone forms in England. It was in this coastal zone, more than a quarter of a century ago, that Tom Dunn noted the impact of public pressure on the butterfly's cliff habitats. Previously, colliery tipping had already obliterated most of the colonies at the northern end of this area, together with others at the southern end. According to an recent article in the Durham Wildlife Trust's magazine by Ian J. Waller, Tom Dunn's fears seemed to have been realised during the 1970s and 80s when a number of colonies of the butterfly died out, leaving its remaining populations even more small and fragmented.

A number of the sites where the butterfly still occurs are managed as reserves by English Nature or by the Durham Wildlife Trust; for example Bishop Middleham Quarry. Some sites that once formed part of the butterfly's much wider range of distribution still support the foodplant and are being considered for possible re-introductions. Ian Waller believes that the future of the species now looks much brighter as clear guidelines for site management have been provided under the Durham Biodiversity Action Plan (produced by the Durham Wildlife Trust) and the Regional Action Plan (produced by the North of England Branch of Butterfly Conservation).



Devon survey of the Great Green bush cricket, *Tettigonia viridissima*

The south-western English county of Devon remains a relative stronghold of this, the largest (and loudest) of the British Orthoptera. In many other parts of its range, which extends from SW Wales to East Anglia, a great many of its habitats have reportedly been lost. Many of these sites were small areas of "wasteland" which succumbed to housing developments even before the current alarming projections for future growth in housing, especially on so-called "brownfield" sites.

Although there is currently no evidence of a serious decline in Devon, the plight of the Great Green bush cricket elsewhere has prompted its inclusion among 20 invertebrate species in the Devon Biodiversity Action Plan, according to the March 2000 issue of the Bulletin of the Devon Invertebrate Forum. The Bulletin announces a data-gathering exercise which is being co-ordinated by the Devon Biodiversity Records Centre. It is hoped that the data will show the current distribution and status of the insect in Devon and may also help to indicate its conservation needs elsewhere. This study forms part of a range of activities which are being led by Robin Toogood of South Hams District Council, with the assistance of the Devon Wildlife Trust.

Entomologists in Devon are being asked to provide records of *T. viridissima*, using a special recording form which is available from: Phillipa Burrell at Devon Biodiversity Records Centre, Devon Wildlife Trust, Shirehampton House, 33-37 St. David's Hill, Exeter EX4 4DA.

Woodland interior invertebrates: Somerset survey

The Somerset Wildlife Trust recently commissioned a review of a rather neglected range of woodland invertebrates in this county of SW England. There has been a reasonable amount of interest in species that need the warmth and bright sunlight of glades, coppiced areas and woodland rides. Less attention has, however, been paid to those that depend more on the dark interior of dense unmanaged woodland. In reality of course, some species need both types of conditions, especially those that live as larvae in dead wood while also requiring flowers as an adult food source.

It is to the Trust's credit that this study was carried out, as there have perhaps been too many cases of unsuitable opening-up of woodland canopies in various parts of the UK. Primeval woodland probably contained a mosaic of open savannah-like areas, interspersed with very dense tree cover. Shade-loving species with poor powers of dispersal were presumably able to move between adjacent areas of suitable habitat, but the opening-up of today's isolated habitats can contribute to



the extinction of such species, even at a national or international level. It is therefore very important to make a careful assessment of woodland habitats before adopting practices such as bringing back neglected coppice into management. Criteria that should be applied before re-coppicing are set out in the AES book *"Habitat Conservation for Insects: a Neglected Green Issue"*.

The Somerset Trust's Conservation Officer, David Westbrook, writes that ecologist Richard Thompson was commissioned to assess a range of sites in the county for their value as habitats for invertebrates of the woodland interior. Richard's report deals with over 200 invertebrates that are believed to be most closely associated with this kind of habitat in Somerset and that can be used as indicators of habitat quality. He analysed the known distribution patterns of these species so as to identify sites of particular value. As could have been expected, two woodland areas of large size and with "old growth" characteristics ranked highest, these being Horner Woods and Nettlecombe Park. It was, however, rather surprising that certain other areas also ranked highly, including the Somerset Levels and Moors. Although these areas are predominantly non-woodland, David Westbrook suggests that their management may have allowed remnants of former woodland habitats to have survived longer than on the drier lands nearby.

FUTURE EVENTS

UK National Moth Night: 23rd September 2000

This project is intended to focus the efforts of moth recorders around the UK, to provide a large set of moth records on a chosen night and to raise publicity and funding. The funding is raised partly through the use of a premium-rate telephone line (*Insectline*, 09068 700259), which provides information about local activities and the range of data that volunteer recorders need to provide. Organisers of local activities can contribute details on another phone line (*Insectline* hotline, 01565 722928). Following the considerable interest that was stimulated by the 1999 event, there are plans to hold an event annually in future, with the next one scheduled for Saturday 23rd September. Different dates will be selected from year to year, so as to cover various parts of the season.

Rushy Meadows Project: 22nd July 2000

(adapted from the *Lepidoptera Conservation Bulletin*)

Rushy Meadows, a Site of Special Scientific Interest near Kidlington in the English county of Oxfordshire, has been selected for a series of recording events over the next four years to help build up a list of the



animal species that occur there, with some emphasis on Lepidoptera. The site is ... "a series of unimproved alluvial grasslands alongside the Oxford Canal, with thick thorn hedges containing large Crack willows, Guelder-rose and Wayfaring tree. The meadows are dominated by three species of rush, *Juncus* spp., with many flowering plants including Devil's-bit scabious, Marsh valerian, Early marsh orchid and Water vens. There are sedge-fen areas and a stream runs through the site."

Meet on 22nd July at 14.30 and 20.30 hrs at grid ref. SP 484 141 (the 1st car park before the level crossing on the railway line). From the junction of Kidlington High Street and the A423, turn west into Lyne Road and follow the road to its end, passing several curves around housing estates. The canal towpath allows trolley access for the transport of generators. Leaders: Paul Waring (01733 571917) & Martin Townsend (01865 777810)

Gloucestershire Invertebrate Group meetings

Below are brief notes of meetings that are scheduled for the three-four month period following the planned publication date of ICN.

Sunday 16th July: Aston Farm, Cherrington and the Downs, Westonbirt; two limestone grassland sites. Contact Guy Meredith for details (Tel. 01242 524138)

Saturday 12th August: Cinderford Linear Park & Wigpool; open areas within the Forest of Dean, with relict heath and old ponds. Contact Ingrid Twissell for details (Tel. 01452 714413)

Sunday 3rd September: Long Pool and Coombe Hill Canal; two wetland sites in the Severn Vale. Contact Keith Alexander for details (Tel. 01285 651171)

Saturday 7th October: Barnsley Wold (ancient wood pastures) and Whelford Pools (old gravel pits), subject to permission from site owners. Contact Keith Alexander for details and confirmation (Tel. 01285 651171).

Biodiversity Training Workshops

Workshops being run by The Wildlife Trust (Cambs., Beds. and Northants) include the sampling and identification of invertebrates (bookings, £15 each). Ground beetles, Orthoptera and Odonata are to be covered respectively on: 15th July, 5th August and 2nd September – details from Vera Herman (Tel. 01604 405285; fax 01604 784835; e-mail veraherman@northwt.cix.co.uk)

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NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as *bona fide*. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

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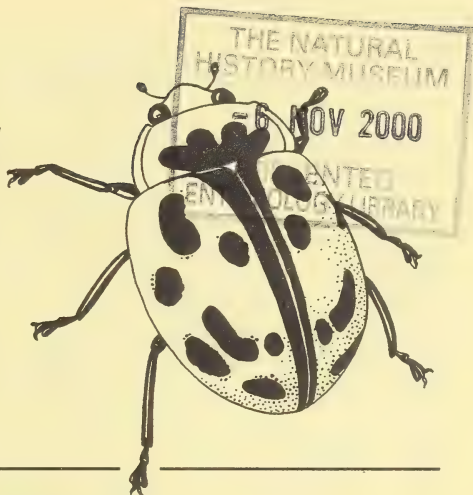
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INVERTEBRATE CONSERVATION NEWS



No. 33, October 2000

EDITORIAL

To combine the words “garden” and “wildlife” is to conjure up a variety of images, only some of which may appeal to invertebrate conservationists. On nature reserves, wildlife gardening (i.e. creating or enhancing habitats for individual species to the possible detriment of others) is a questionable departure – albeit an occasionally justifiable one – from the broader principles of site management. Gardening is perhaps best confined to gardens, where our desires for the beautiful (and the edible) can arguably take priority. A garden which satisfies these desires can also contain a good variety of invertebrate foodplants, with plenty of “corridors” for the movement of natural pest control agents, together with other habitats such as a deadwood pile and a pond (fish-free unless very large and structurally diverse). It need not be a place whose owner abhors the merest dead leaf or creepy-crawly or whose idea of conservation is to boost an invertebrate-hungry bird population by artificial feeding and to attract butterflies with nectar-rich plants with no thought of their larval requirements.

“Wildlife-friendly” gardening in the domestic scene has been increasingly promoted in various ways, including the publication of guides such as those published by the AES. The benefits promised by a growing interest may, however, be diminished by the trend towards smaller gardens in densely populated countries like the UK. There are several reasons why small gardens may not be very good for invertebrates. First and most obvious is the fact that only a small part of a high-density development site is devoted to green space. Also, homeowners with small gardens may think that it is impracticable to find room both for the plants that they want to eat or admire and for the foodplants of invertebrates, let alone a deadwood pile. Indeed, the



owners of quite large gardens often seem unwilling to accommodate such things, or even a compost heap.

Another problem lies in the methods now used by site developers. In the high-density developments that are now typical of densely populated countries, virtually every square centimetre of land is stripped of vegetation (and probably also topsoil) during site preparation, thus obliterating any existing habitats. Such destruction occurred less widely in the housing enterprises of the nineteenth and early twentieth centuries, when more generous plots and the absence of heavy machinery allowed parts of the land to remain relatively undisturbed. In some cases, relict woodland or the remnants of old orchards still persist in gardens that were created in those days. Much of the legacy of large gardens in older residential areas remains, but it is being increasingly eroded by back-garden developments and by the wholesale re-development of old residential areas.

In larger and less densely populated countries like the USA, new housing developments often still allow space for large gardens, which incorporate surviving features of the pre-existing woodland or open country. Admittedly, however, such developments create suburban sprawl and sometimes the virtual disappearance of true countryside between town centres. Thus, although they leave plenty of room for wildlife, they can be regarded as very undesirable with regard to their incursions into rural areas and their creation of excessive car-dependency.

Important issues like the loss of countryside and increased car usage prompt strong arguments against low-density developments, particularly of "greenfield" sites. We should, however, never undervalue the so-called brownfield sites. As many such sites lie near centres of human population, they have great value (perhaps largely informal) as an educational resource, as well as for wildlife habitats. The childhood interest of a generation of naturalists was partly kindled by the "unofficial" wildlife that flourished on World War II bombsites. In response to the re-development of many such areas, the forerunner of *ICN* was drawing attention to the value of "derelict land" for wildlife as long ago as 1972. At that time, it was perhaps not immediately obvious that the demand for new housing in the UK would continue to increase greatly, despite a falling birth rate. Nowadays the arguments are less straightforward, as we cannot easily defend brownfield habitats without seeming to weaken the justifiable case against greenfield developments.



A dilemma clearly exists for those who cannot, in all conscience, give unqualified support to environmental groups who are campaigning for new houses always to be built on brownfield sites in preference to greenfield sites. While perhaps not totally ignoring the ecological value of so-called brownfield sites, these groups appear to be clutching on to the idea that such sites support only species that can survive perfectly well elsewhere. They could seek further comfort by considering that garden habitats will exist after development, but they would then have to bear in mind that both the area and the quality of such habitats may be very limited within a high-density development.

While encouraging proper debate, invertebrate conservationists may have to accept that ecological losses will inevitably come with further housing development, whether greenfield or brownfield. In order to help mitigate the losses, we should campaign at the local planning level for as much informal green space as possible to be provided within all new housing developments. We can also try to inform and encourage people who have very small gardens or perhaps nothing more than walls, roofs or balconies. They can be made aware that they can still create and enhance wildlife habitats by growing (or allowing the growth) of invertebrate foodplants. If they can be encouraged to think about the pros and cons of providing birds with bought-in feed, so much the better.

NEWS, VIEWS AND GENERAL INFORMATION

Safeguards urged for the growing of GM crops in the USA

In experiments conducted in 1998 by scientists at Cornell University, caterpillars of the Monarch butterfly (*Danaus plexippus*) showed heavy mortality when feeding on leaves of milkweed (*Asclepias curassavica*) that had been dusted with pollen from GM maize. The maize had been modified so as to synthesise the *Bacillus thuringiensis* (Bt) toxin; i.e. its own "insecticide". In theory, such crops could have the benefit of allowing reduced use of chemical sprays but toxic pollen was a cause for some alarm. Admittedly, the feeding trial was done in artificial conditions but it was later reported by workers at Iowa State University that high mortality also occurred amongst Monarch caterpillars on milkweeds growing around fields of Bt maize.

According to an article by Michael J. Bean in the fall 1999 issue of "Wings", the Xerces Society journal, a number of safeguards were urged



last year in the USA by the Environmental Defense Fund (EDF). One of the safeguards would be the inclusion of buffer strips of non-Bt maize around fields of Bt maize so as to reduce the contamination of invertebrate foodplants by Bt-containing pollen. The EDF also asked for an advisory panel on the ecological hazards of GM crops to be set up. This situation contrasts with that in some other countries, such as the UK, where it is not currently legal to grow GM crops except as part of controlled field trials. Even this limited release of GM crops is causing some concern in some circles, as it has the potential to allow cross-pollination with non-GM crops and with related wild plants (see the editorial in *ICN* 29).

Invertebrates associated with ancient hollow oaks in Sweden and other European countries

The following item is based on part of a report by Dr. Roger Key of English Nature, following his attendance of a symposium on this subject, held in August 1999 at Stiftsgård, Vårdnas, Lynköping, Östergötland, Sweden. The symposium was attended by delegates from the following countries: Sweden, Denmark, Latvia, England, Wales, Germany, France and Moldavia. It was hosted by the Swedish Environmental Protection Agency and the Provincial Government of Östergötland. Separate items in other sections of this issue of *ICN* are also based on Roger's report.

The report made some comparisons between the status of ancient trees in the UK and in Sweden and other continental countries of Europe. As mentioned in recent issues of *ICN*, the interest in ancient trees is growing in the UK, as promoted by the Ancient Tree Forum, and by English Nature's Veteran Tree Initiative (VTI) and its Scottish and Welsh counterparts. Such trees, which are often in pasture woodlands and wooded commons, rather than in forests managed for timber, are extremely important for dependent rare invertebrates, fungi, and lower plants. Many of these species have limited powers of dispersal, having evolved in conditions where there was no need to travel far from one old tree or piece of deadwood to another. Such species are ill-adapted to re-colonise isolated areas in which habitat loss has previously led to local extinction, even if potential habitats develop again in later years.

Roger Key comments on the view that the UK, particularly England, contains most of the veteran trees of Europe north of the Mediterranean region. This may be true overall, but he reported seeing great numbers



of very large ancient oaks in Östergötland in situations very similar to those where they occur in UK – in old hunting forests, in deer parks in old wood-pastures. Some that he saw were almost as large in girth as the typical “Windsor” type oaks west of London, but much taller like the oaks at Sherwood Forest, Nottinghamshire. He learned that the problems faced by these trees are very similar to those in the UK; they support a similar fauna and flora and many of the same species are undergoing declines in very much the same way as in UK.

The delegates at the symposium recognised that all their countries had pasture woodland and that it was a threatened habitat. It emerged that Germany has particular problems with laws prohibiting grazing in areas that have forest, including most of their former pasture woodland. The situation seemed even more worrying in Latvia, which seemed very backward in influencing its forestry industry in conservation; indeed, it was admitted that all old trees found to have decay during forestry operations are cut down as “sanitary felling” against “pests”. In Sweden, responsibility for protecting species and sites and doing ecological research on critical species falls to individual county administrations. There is a concept somewhat similar to the UK’s “Natural Areas” (NAs), although these do not cover all of Sweden and are not contiguous. Östergötland has designated the central area as “Ekarlandscapen” – oak landscape.

It seemed to Roger that major problems in other countries were being created by state and commercial forestry interests and tree surgeons, all of whom are apparently very hostile to ancient trees on supposed grounds of safety and hygiene. Nevertheless, he saw some ancient oaks in the main street of the village of Åtvidaberg which were more decrepit than might be tolerated in similar situations in the UK. None of the countries represented seemed to be as advanced as the UK in encouraging awareness of ancient trees and of the problems facing them. Particular interest was therefore expressed in the VTI and also the Ancient Tree Forum and especially in the VTI/ATF tree recording methodology and veteran tree management handbook.

Despite the lack of anything similar to the VTI or the ATF in Sweden, Roger was impressed by a centre of excellence at the University of Lund, consisting of a unit whose members are studying lichenology, mycology, entomology (the entomologists include Sven Nilsson) and pedology in relation to ancient trees. They have a Web site concerned with the colonisation of coarse woody debris. Also, Roger was told about a county recording tree scheme in Östergötland, in which 33



unemployed people had been recruited under a government programme to count all oaks greater than 50 cm in diameter and to make inventories and maps (using a geographical information system) of all trees with a breast height greater than 70 cm (>100 cm for oaks). The intention was to use the data to help identify the most important areas for invertebrates, fungi and lichens so that these could be monitored and considered in planning.

By the time of the 1999 symposium, only 20% of the area had been covered but, having started with the most likely localities, the surveyors had already recorded over 20,000 old oaks (50% of which were hollow). Most of the ancient oaks had been found in open farmland, in field margins and particularly in association with farm buildings, rather than in areas of wood pasture and deer park that are still known to exist. Comparison with historical data, which included an 18th Century record of the number of hollow oaks in the Bjärka Särba deer park, showed severe losses of ancient oaks. The largest age group among the present-day old oaks is around 250 years, but some trees in the "Ekarlandscapen" are apparently much older. The mapping system is intended to include information on the numbers of ancient trees per unit area and on their state of decay.

As far as management of deadwood habitats was concerned, it was noted that Östergötland had received funding under a "Life" project with 33 million SAEK (\equiv £2.5 million) for a single species of saproxylic beetle (the Hermit beetle, *Osmoderma eremita*). This scarabaeid beetle is thought to be a good "flagship" species because it is relatively widespread, not uncommon in some areas and big and spectacular. Practical measures, involving 45 sites, were to include the restoration of oak wood pasture through clearance of excessive regeneration and by restoration of controlled grazing. The objectives were that each stand of old oaks should eventually have 50 + hollow trees and that greater connectivity of such stands should be achieved by retaining more old hollow oaks in the wider countryside. Compensatory management agreements were being made available for landowners. Additionally, the project included provision for survey work, international symposia such as the one attended by Roger and the establishment of the site and tree inventories and of a European network on the conservation of *Osmoderma eremita* & other saproxylic species.

One of the Swedish participants, Bengt Ehnström, reported attempting a form of management that has not apparently been considered by UK veteran tree enthusiasts. He had engaged a pest



radication company to destroy ants' nests with insecticides, on the grounds that ants that gain access to old hollow trees can be very damaging to the saproxylic beetle fauna. (Whether this is meddling or essential rescue action may depend on one's opinion.) In this context, Jean-Marie Luce noted that *Lasius brunneus* tolerates only its "guest" beetle species in the ancient oaks it inhabits and eliminates other saproxylic beetles from the trees. Another Swedish worker, Björn Jäderberg, commented that wood ants (*Formica rufa/lugubris* group) tend to invade the wood mould of old hollow trees following the loss of previous shading from direct sunlight.

SITES AND SPECIES OF INTEREST

Saproxylic beetles: reports from the 1999 Swedish symposium

Dr. Roger Key's report on last year's "hollow oak symposium" in Sweden includes brief notes on various interesting species, based on the comments of the delegates from the several countries that were represented. A selection of these notes, as edited for inclusion in *ICN*, are as follows.

Agrilus biguttatus (= *pannonicus*), fam. Buprestidae

Two-spot wood borer):

- very rare in Sweden, where it has not increased as in the UK.

Ampedus balteatus, fam. Elateridae:

- an indicator of continuity, restricted in Sweden to big old oaks;
- in the UK, a reasonably common species in decaying birch and occasionally peat.

Ampedus ferrugineus, fam. Elateridae:

- reportedly a very secretive species, which is probably much commoner than records would indicate; found only in felled ancient oaks (Jean-Marie Luce).

Cetonia aurata, fam. Scarabaeidae (Rose chafer):

- represents 75% of all (invertebrate?) biomass in the wood mould of hollow oaks in France.

Gastrallus immarginatus, fam. Anobiidae:

- found regularly in bark of old oaks in Sweden; not necessarily in the open
- in UK appears only to be in large, exposed old field maple (*Acer campestre*)



Gnorimus nobilis, fam. Scarabaeidae (Noble chafer):

- in France, associated with many trees other than fruit trees and is regarded as a “primary” coloniser of decay in small incipient hollows; it occurs over most of France but seems to be declining fast (Jean-Marie Luce)
- recorded as local in Sweden, occurring only on sun-exposed trees, particularly in mountainous areas; Swedish records are mainly from under loose bark (of oak) rather than in cavities (Nicklas Jansson).

Gnorimus variabilis, fam. Scarabaeidae:

- occurs later in succession than *G. nobilis* and only in the largest, oldest trees, usually near ground-level; its distribution in France (as with many other species), reflects the distribution of Sweet chestnut (*Castanea sativa*), which is the main old tree (in chestnut orchards) over much of France; it has declined considerably in most of N. France – much more so than *Osmoderma eremita*, but still occurs in S. Brittany and S. France (Jean-Marie Luce).

Hypebaeus flavipes, fam. Malachiidae

- occurs only in old oaks in open sunshine and is very rare in Sweden (Thomas Ranius)

Limonicus violaceus, fam. Elateridae:

- fewer than 10 sites for this species are reported to exist now in France; at Fontainebleau it only occurs in ancient beech, but in southern France it occurs in quite small *Quercus pubescens* (Jean-Marie Luce).

Lucanus cervus, fam. Lucanidae (Stag beetle):

- not uncommon in Östergötland (Sweden) in dead wood in the ground, especially oak stumps and in urban/village areas (comment from Nicklas Jansson)

Ptilinus sexpunctatus, fam. Anobiidae:

- a Red-listed saproxylic in Sweden, associated with ancient oaks; in the UK it is in bumble-bee nests.

Regarding Red-listed saproxylic species in general, Sven Nilsson (one of the delegates at the symposium), had found that old-growth trees in formerly intensively managed forest in Sweden had about half the number of Red listed saproxylic species when compared with old growth trees in “nearly primeval” forest. The species in fallen dead wood did not show the same relationship but there were far fewer of them. The most species occurred in standing hollow trees that were still



alive. (Interestingly, the Merveille du Jour moth (*Dichonia aprilina*) is regarded as an ancient forest indicator in Sweden.

The exposure of trees to sunlight was another factor affecting the number of saproxylic invertebrates, especially Red-listed ones, in the Swedish studies. Both Kjell Antonsson and Tomas Gustavsson noted that trees on the edges of groups or standing out in the open in full sun had the richest faunas. On average, open-grown trees (i.e. as in parkland) had ten saproxylic species more per tree than trees at the edges of stands or within woodland.

Surviving the Sea Empress oil spill: Invertebrates at Castlemartin, West Wales

In 1998, two years after the Sea Empress disaster on the Pembrokeshire coast, staff from the Field Studies Council at Orielton set up a permanent survey transect across an area of rocky shore at Pen-y-holt Stack in the Castlemartin firing Range of the UK Ministry of Defence. Writing in the 2000 issue of *Sanctuary*, the Ministry's conservation magazine, Dr. Robin Crump reports that, by February 1999, there was very little sign of damage from the very heavy contamination of crude oil which had occurred only three years earlier.

The oil contamination caused massive mortality of limpets (*Patella vulgata* and *P. depressa*) and barnacles (*Chthamalus* and *Semibalanus* spp.) but the oil was quite soon dispersed by the vigorous wave action that is typical of the area. Initially, the loss of the limpets resulted in a temporary flush of green seaweeds of the genus *Enteromorpha*, on which they had previously exerted considerable grazing pressure. The balance was later restored when the limpets, together with the barnacles, re-colonised the shore as larvae from plankton.

Dr. Crump comments that the rapid recovery of the shore fauna was undoubtedly helped by the lack of post-spillage cleaning of the more inaccessible parts of the Range, this was especially true at Frainslake Bay, a long sandy beach at the extreme western end of the Range. As mentioned in *ICN 27*, the Bay has populations of the Red Data carabid beetle *Nebria complanata*. As this shoreline beetle depends on flotsam and jetsam for shelter, great care is now taken to avoid damage to this habitat.

Another item in *Sanctuary* also mentions the Castlemartin Range, although not in connection with the oil spillage. The Range includes ungrazed and uncut grassland, in which the Shrill Carder bee *Bombus sylvarum* was recorded in a recent survey funded by the Countryside



Council for Wales. This species has declined greatly; indeed it was not found even during a survey of the famous chalk grassland of Porton Down, as mentioned in an accompanying news item.

Chequered skipper survey in Scotland

The Spring/Summer 2000 issue of *Butterfly Conservation News* mentions provisional results from a survey by Scottish Natural Heritage of known sites in Scotland where the Chequered skipper (*Carterocephalus palaemon*) had previously been recorded. Although, due to poor weather, the numbers seen were low, it was encouraging that the species was found at all the sites. It became extinct many years ago in England but re-introduction trials have been under way as part of a five-year project which is due for review this year.

Insect studies at Porton Down, Wiltshire, southern England

Porton Down is famous for including a substantial area of chalk grassland which remained largely undisturbed throughout the 20th Century, having been taken over by the UK Ministry of Defence (MoD) before changes in agricultural practices that led to the ploughing of most similar areas. In an article in the 2000 issue of *Sanctuary*, the MoD conservation magazine, Clive Bealey reports a study of the butterflies of the area which he began in 1995 under sponsorship from DERA. It was already known that 46 species (nearly 80% of the British butterfly fauna) occurred at Porton Down but information was also needed on the population sizes and the types of habitats occupied.

As far as population sizes were concerned, data from 150 transects during 1995 and 1997 were extrapolated to provide estimates for the entire study area of chalk grassland (approx. 1,700 ha). The estimates for several species were as follows: Dark Green fritillary (*Mesoacidalia aglaia*) 320,000; Small heath (*Coenonympha pamphilus*) 281,000; Common blue (*Polyommatus icarus*) 176,000; Marbled white (*Melanargia galathea*) 67,000 and Meadow brown (*Maniola jurtina*) 1,100,000. Clive Bealey considers that these populations are high not only because of the total area of habitat niches, but also because individuals are able to roam freely in search of the most suitable oviposition sites. Most other UK populations of grassland butterflies exist inside small niches inside largely unsuitable areas.

Clive Bealey's studies of individual species illustrated the importance of niches which can be colonised when previously occupied ones become unsuitable, if only temporarily. The Silver-spotted skipper



Iesperia comma), normally thrives best on warm micro-sites in the K, where it is near the western edge of its geographic range. In 1995, however, hot dry weather at Porton (its greatest UK stronghold) led to shortage of the larval foodplants (various grasses) on the warmer micro-sites. With high ambient temperatures but a cooler micro-climate, it was therefore the cooler north-facing slopes which unusually provided the better larval habitat in 1995. In areas where arable farming has replaced chalk grassland, the butterfly is often restricted to uncultivated steep slopes. If these are north-facing, local extinction can occur when unusually cool summers slow down development too much for successful breeding. If they are south-facing, conditions may be generally good, but excessively dry in certain years (perhaps increasingly so due to global warming).

In areas where suitable micro-sites are few and isolated, extinction of butterflies and other invertebrates can easily become permanent, often eventually leading to a retraction of the geographical range of the species concerned. On the other hand, extinction at micro-sites is not a problem within an area like Porton Down, which is large and varied enough to provide plenty of other nearby niches where colonies can persist during bad years or during periods of adverse vegetational change. This process of re-colonisation was demonstrated when Clive Caeley extended his observations to surrounding sites subjected to intensive grazing by livestock and to encroachment by scrub. There was so little habitat for some of the butterfly species that the populations appeared to be viable only due to re-colonisation from the nearby stronghold of Porton Down, especially in the case of the Dark green fritillary (*Mesoacidalia aglaia*).

Bumblebees have been the subject of another study at Porton Down connected with the Environmental Change Network. Writing in the same issue of *Sanctuary*, Oliver Howells reports that the area was sited in 1998 by eight members of the UK Bumblebee Working Group. The group was especially interested in the possibility of finding the Shrill Carder bee (*Bombus sylvarum*). This is listed as a Biodiversity Action Plan (BAP) species, having become very scarce due to agricultural changes. Its foraging habitat has been reduced with the decline of fallow clover crops, while potential nesting sites have declined with the intensification of grazing. Unusually for a solitary bee, this species nests in the abandoned runs of small mammals in tall grassland swards, where a low grazing intensity has allowed the development of a layer of litter or thatch.



Although the rabbit-grazed grassland of Porton Down provides a mixture of sward heights, providing potential nesting habitat together with plenty of potential nectar sources, the survey did not reveal any sign of *B. sylvarum*. It is, however, good to see another report in *Sanctuary*, concerning the presence of the bee at the Castlemartin Range in West Wales. Also, the team of hymenopterists found many other interesting species at Porton, including fifteen different bumblebees. These included another carder bee on the BAP list, *Bombus humilis*, which is more typically found in moss or grass tussocks in coastal regions of south-west Britain.

RESEARCH NOTES

Studies on the saproxylic beetle Osmoderma eremita in Sweden

As mentioned elsewhere in this issue of *ICN*, Dr. Roger Key of English Nature provided a report last year on a symposium held in Sweden to review the European status of invertebrates associated with old oak trees. The symposium included sessions on research that has been taking place in Sweden on the beetle fauna of such trees. Most of this work is being done by professionals undertaking systematic survey using traps, rather than *ad hoc* recording by amateurs.

The trapping systems for saproxylic beetles in Sweden mainly employ small transparent plastic window traps fixed fairly high up on the tree trunk; these collect into baking tins containing a glycol/detergent/water mixture. Other methods include the use of pitfall traps sunk into the surface of wood-mould in hollow trees and the sieving and extracting of whole faunas from eight litre samples of wood mould. Window trapping and pitfall trapping, both of which involve monthly visits by the researchers, produce only a partial overlap in the species recorded. Another method is to use mark-recapture and radio-tracking of individual beetles. The transmitter equipment, which weighs 0.48g, lasts for 20 days and works over a distance of 50 to 80 metres but wet conditions greatly reduce the range owing to radio reflections off wet foliage. Similar studies in Germany have reportedly involved tracking over distances up to 400 m.

A group led by Kjell Antonsson (convener of the symposium) was examining the influence of the proximity and structure of tree stands and the size of trees on the beetle fauna of old hollow oaks at 18 study sites. Group members had been studying dispersal, especially of the



large scarabaeid beetle *O. eremita* within and between patches of old oaks. Using mark and recapture and radio tracking, Jonas Hedin and Tomas Ranius of Lund University had found that 20% of adults marked in one tree turn up in nearby adjacent trees. It had also been shown that adult beetles fly no more than 150 m and that 50 to 80% of them stay in the same tree throughout life.

Another of Tomas Ranius' findings had been that the number of individuals of *O. eremita* in a single tree was usually fewer than ten but occasionally up to 100. Within reasonably large groups of old oaks (>25), the total population had remained stable at about 300 adults per group over a three-year study period. Also, the proportion of trees colonised was positively correlated with the number of trees in the group and the connectivity of the habitat. Indeed, the beetle had never been found in groups of fewer than five old trees.

The preliminary conclusions seemed to be that there was evidence of dispersal of *O. eremita* within groups of trees; not between them. It seems likely that the beetle is becoming locally extinct more often than it colonises new trees. Its populations seem to react very slowly to change and will be slow to take advantage of improved conditions in countryside.

The Heath Grasshopper (Chorthippus vagans) in the UK

This is one of several Orthoptera being studied by CABI Bioscience. Dr. Oliver Cheesman writes that it has been adversely affected by fragmentation of its only remaining habitats in the UK; very localised areas of dry heathland in Dorset and the New Forest. It is intended to clarify its distribution and to elucidate its habitat requirements. Early indications are that it might be associated with gorse (*Ulex* spp.), rather than with ericoid species as the literature suggests.

ERRATUM: ICN 32

Please note that the first item under "News, Views and General Information" in ICN 32 unfortunately lost its title during production. The title, as shown in the "Contents", should have been as follows: *New UK legislation for countryside access: problems for field studies?*

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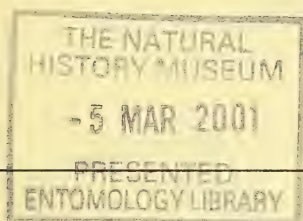
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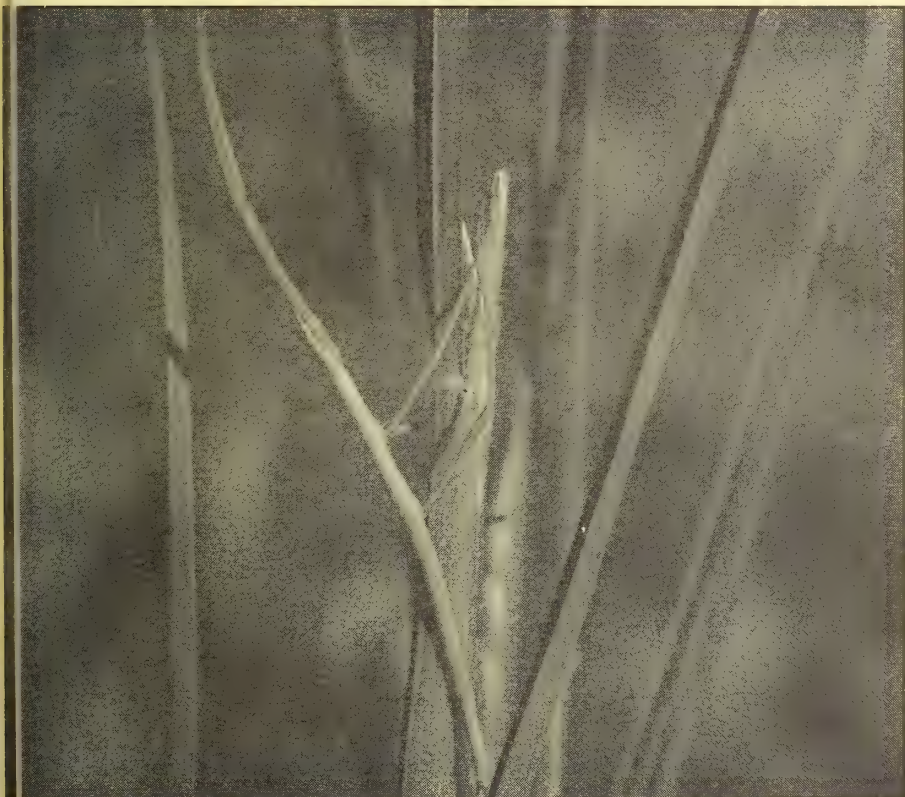
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INVERTEBRATE CONSERVATION NEWS



Vol. 34, February 2001

EDITORIAL

et again, public debate seems to have caught up with ideas and arguments that were being put forward in *ICN* many years ago.

The first issue of the bulletin that later became *ICN* appeared in May 1969. In a foreword, the late Roy Hilliard drew attention to the need for habitats to be conserved in the wider countryside; i.e. not only in nature reserves and other specially designated sites. Unlike many other people at that time, he realised that, although such sites might be the jewels in the crown, they could never become the crown itself, let alone the whole regalia. In the intervening years, we have published many editorials and articles highlighting the problems of habitat isolation and the need for species to be able to move between sites or micro-sites in response to changing conditions.

The need for conservation in the wider countryside was a principal theme of the AES book *Habitat Conservation for Insects: a Neglected Green Issue*, which in 1991 was the world's first of its kind. By then, however, we were probably already preaching to the converted as far as conservation professionals were concerned. Even the interested public seemed to be aware of the habitat losses associated with intensive farming, although there was perhaps little public understanding of the needs of invertebrate species with restricted powers of dispersal.

Now at the start of the New Millennium, the need for conservation in the wider countryside is becoming a principal theme of environmental debate. This probably has nothing to do with the force of the arguments that we began to advance years ago. Instead, it probably stems from the fact that the sheer scale of habitat degradation and loss has begun to have a serious impact not only on poorly dispersing



invertebrates but also on conservation's icing on the cake; i.e. birds and some of the most popular and showy invertebrates, especially butterflies.

Many of the bird species whose populations have drastically declined are farmland ones which are partly or wholly insectivorous. The modern farming practices that have led to their decline have probably done so by depriving them of insect food, particularly at critical times when their nestlings are growing. This is all very sad, but the problem goes much deeper than a reduction in the sheer bulk of invertebrate bird fodder. The bird species that have suffered represent a tiny proportion of our biodiversity. There is (or was) immensely greater biodiversity in the many invertebrate species whose fate has not been exactly given front page treatment by the environmental press.

Anyway, it is at last good to hear some public debate on the desirability of providing funds for the generality of wildlife beyond the jewels in the crown. It has to be admitted that we are talking about funding that will have to be very different in character and scale to existing expenditure on conservation, whether public or private. The funds that are now spent on individual nature reserves, on SSSI management agreements or on species recovery would be hopelessly diluted if spent in a broad-brush manner. The real money is in agricultural subsidy and it could be used in future not only to support the livelihoods of farmers, but to encourage the re-discovery of wildlife-friendly ways of managing our land and water.

NEWS, VIEWS AND GENERAL INFORMATION

Invertebrate Conservation Trust goes ahead

Since the early 1980s, much thought has been given to the case for or against the establishment of a UK-based organisation dedicated to invertebrate conservation. At first, it was hoped that the need for such an organisation could be filled by the Joint Committee for the Conservation of British Invertebrates (when the "I" in JCCBI still stood for insects). It was, however, later accepted that the JCCBI's activities were destined to remain restricted to certain areas, mainly the provision of a very useful forum for discussion and the publication of codes and guidelines, which have included those on insect collection, species re-introductions, site surveys and the role of wildlife laws. It also occasionally sends representations to governments and to other organisations.



The main activities that could not be pursued by the JCCBI have been the support of conservation projects and the public promotion of the cause. Mounting pressure for these gaps to be filled has led to intensified debate amongst the JCCBI member-bodies over the last four years. The two "Peterborough conferences", in February 1996 and September 1997, opened up the debate to a wider audience. Eventually, in 2000, it was decided that a new charitable organisation should be set up with the assistance of one of the JCCBI member-bodies, the British Entomological and Natural History Society. At the time of writing, the necessary application to the Charity Commissioners is under way and the "Invertebrate Conservation Trust" should soon be in existence.

The next Peterborough conference, in March 2001, is intended to help launch the ICT and to invite a wide range of ideas and suggestions for its future work. Information on the conference is shown in the "Future Events" of this issue of *ICN*.

Table Area Payments

In *ICN* 32, we published the alarming news that UK farmers seemed about to lose their incentive for maintaining broad wildlife-friendly field margins, including hedgerows. The incentive takes the form of a calculation of subsidy on the basis of the entire field area, including the margins. It was, however, announced that eligibility would in future only apply to the area of the crop, plus a maximum of a two metre-wide border.

In view of the risk that the new ruling would undo many years of good work, encouraging farmers to establish "conservation headlands", the principal conservation bodies made their views known to the UK government. We are now very pleased to see in the January 2001 issue of English Nature's newsletter for Hampshire and the Isle of Wight, that good sense prevailed. Under a new ruling the two-metre threat has been removed.

SITES AND SPECIES OF INTEREST

Fairy shrimp in Gloucestershire

The Gloucestershire Invertebrate Group generates so much interesting news that it would be tempting to fill up much of *ICN* with items gleaned from its newsletter, while disproportionately little is included from other places (including the rest of the world!) where such groups do not exist! It was, however, an unfortunate omission that we did not say an interesting report back in 1999, that Jonathan Elphick had



discovered the Fairy shrimp, *Chirocephalus diaphanus* at Stratton near Cirencester. This was the first record of this designated "Vulnerable" and legally protected species in the county, other recent UK records having been confined to southern coastal counties of England and Cambridgeshire in the east.

Fairy Shrimps are freshwater crustaceans of the sub-class Branchiopoda, the members of which have gill-plates on the feet, via which they breathe. Like most other species of fairy shrimp, *C. diaphanus* (the only British member of the group) is found in pools which dry up seasonally. These include vehicle ruts, as well as natural pools. When free water is absent, it survives in the dried mud in the form of drought-resistant eggs, which hatch when conditions become suitable again. Unlike some of its relatives in other continents, it does not have a requirement for its eggs to go through a period of desiccation before being able to hatch. A certain proportion of them do, however, remain dormant at the first re-wetting. This helps to prevent extinction of the colony if unfavourable conditions are encountered before the life-cycle is completed.

In Britain, *C. diaphanus* has never been found in permanent water bodies, probably because it makes very easy prey for fish and other predators which inhabit such places. It does, however occur in permanent pools in the mountains of southern Europe. In those regions, according to the UK's *Red Data Book for Invertebrates other than Insects*, its survival seems to depend on the relative lack of fish and other predators. In Britain even temporary pools can be colonised by predators, especially in wet years when the season of drying out is short. Jonathan Elphick reported that colonisation by carnivorous water beetles had occurred under such circumstances at the Gloucestershire site in 1998.

Ironically, attempts to improve aquatic habitats are probably one of the main threats to *C. diaphanus*, according to J. H. Bratton, writing in the above *Red Data Book*. If such activities turn a temporary pool into a permanent pond, predators will build up and wipe out the colony. Also, if water-filled vehicle ruts or other pools are indiscriminately filled in, the habitat can be destroyed. Grazing by livestock on wet land seems to be a good form of management as far as fairy shrimps are concerned. Not only do the animals create temporary pools by poaching the land; they also seem to help to disperse the eggs of fairy shrimps, as has been observed in the New Forest area of southern England.

It is interesting to note that other aquatic invertebrates can also benefit from management which favours the development of seasonal pools. These include *Triops cancriformis*, the Tadpole shrimp, another



ed Data Book endangered branchiopod which has drought-resistant eggs. Like *C. diaphanus*, *T. cancriformis* occurs in the New Forest, where grazing by livestock is a beneficial form of management. Also, as mentioned in *ICN 29*, the presence of livestock in and around ponds provides a food source for yet another rare and endangered species; not a crustacean but the medicinal leech, *Hirudo medicinalis*, which taxonomically is an annelid worm.

Wood cricket in Wiltshire

The January 2001 issue of the Wiltshire Wildlife Trust magazine reports the discovery of the Wood cricket, *Nemobius sylvestris*, for the first time on the Trust's Langford Bog reserve, south of Salisbury. This is a nationally scarce species in Britain, confined to southern England with only three centres of natural distribution: Hampshire, the Isle of Wight and South Devon. The Hampshire population, mainly based in the New Forest, was known to range as far north as the extreme south of Wiltshire but this new record represents quite a sizeable jump in the insect's distribution.

As this cricket is quite small (about 1 cm long), dark and has a quiet song, it is easily overlooked. Thus, there may be some doubt as to whether the Langford Bog represents a new colonisation of the site. In any case, the cricket is now taking advantage of the recent creation of many woodland edge clearings, which typically provide the habitat of this species.

Perhaps, like some other Orthoptera such as the Long-winged cone-head (*Conocephalus discolor*), the Wood cricket is extending its range due to climate change. If so, its chances of persisting in suitably warm areas seem good, according to Marshall and Haes (*Grasshoppers and Allied Insects of Great Britain and Ireland*, Harley Books, 1988). They mention that, in addition to the three natural population centres in England, a colony in Surrey became well established following an apparent introduction in the 1960s.

Good news from Suffolk

(a somewhat whimsical report by Rob Parker, AES Area Rep. for this East Anglian county)

The past few years have seen plenty of benefits for wildlife in Suffolk. Well-informed invertebrates around the county are pleased to report the following endeavours by human organisations acting in the interest of conservation.



Great raft spiders at Redgrave and Lopham Fen are delighted that the Suffolk Wildlife Trust has succeeded in stopping the water abstraction that had been drying out their habitat.

Ant-lions at Minsmere were impressed when RSPB members were briefed on insect conservation by a visiting team from the British Entomological and Natural History Society in 1999.

The threatened colony of Dingy skippers in the Kings Forest were relieved when Forest Enterprise promised to stop destroying their habitat.

The white-clawed crayfish in Chad Brook feel honoured to be amongst the ten invertebrate species featured in the Suffolk County Council's Local Biodiversity Action Plan, and look forward to the benefits of having their own species action plan.

Many native species resident in and around common trees are heartened to find their prospects improved through the extensive plantings made in the last couple of years under the Government's Woodland Grant Scheme.

Beetles around the county are rejoicing at the effectiveness of the Countryside Stewardship Scheme, by which the Suffolk Farming and Wildlife Advisory Group have encouraged landowners to establish conservation headlands and beetle banks.

Dragonflies have already discovered the freshly created reedbeds and lagoons on the RSPB's newest reserve at Lakenheath Fen.

Plaited door snails were amongst the many species encouraged to discover that landowners are once again planting hedges; publicity from Bayer has helped to reinstate old hedgerows, recreating wildlife corridors to link previously isolated woodland habitats.

Brimstones were happy to find their foodplant spreading as a result of the "Buckthorn for Brimstones" initiative organised by the Ipswich Gardening Group, and spread across the county by Butterfly Conservation.

The few surviving Barberry carpets at the Shakers Lane SSSI were much amused to watch the recorders of the Suffolk Naturalists' Society and the Suffolk Moth Group attempting to find them, and appreciated the efforts of English Nature to conserve their sparse habitat.

The Starlet sea anemone and mud snails living in the saline lagoons along the east coast are pleased that the National Trust, the RSPB and the Suffolk Wildlife Trust have recognised the fragility of their existence and have even embarked on lagoon creation schemes.



The Snow fleas in the Suffolk Breckland were impressed at the dedication of the human recorders who came to seek them out in January 2000 with temperatures close to freezing; like the Robber flies and Bumblebees, they stand to benefit from Forest Enterprise's peatland restoration schemes for six sites in Thetford Forest.

Invertebrate intellectuals recognise that the favourable new financial climate, which is allowing Landfill tax revenues to be ploughed back into the creation of new nature reserves, is partly an achievement of informed lobbying by AES/BENHS/JCCBI and welcome this development. Noting that Heritage Lottery money is being spent on new nature reserves like Dingle Marshes, they would urge humans to go on buying the lottery tickets.

stag beetle surveys

The Stag beetle (*Lucanus cervus*), Britain's largest native terrestrial invertebrate, is one of the forty-five invertebrates which has a UK National Biodiversity Action Plan. In *ICN* 26, we reported that the People's Trust for Endangered Species (PTES) had formed a Stag Beetle Focus Group to generate publicity for a national survey in the summer of 1998 ("The Great Stag Hunt"). As this insect is quite easily recognisable to non-entomologists, it was possible to involve many members of the public and thus to collect a large number of records. Also, as this species is dependent on deadwood, the survey has perhaps helped to raise awareness of deadwood invertebrates and their habitats.

The survey has continued since 1998, with the participation of several county trusts, in whose areas the Stag beetle occurs. The London Wildlife Trust and the Hampshire Wildlife Trust cover the two greatest UK strongholds of the beetle, which are in south London and the New Forest. Their results are of particular interest, as are those of counties which lie at the edges of the distribution area, such as Somerset in the south-west and Worcestershire in the south-west Midlands.

The Hampshire Trust, in the January 2001 issue of its magazine, has published a major article on the results of the 1998 survey in this southern English county. As expected, there was a dense cluster of records from the New Forest, but the largest cluster was several miles to the north-east in the city of Southampton. Other clusters extended northwards to Winchester and eastwards to the city of Portsmouth. The Trust comments that these results probably reflect the distribution both of observers and the beetle. Indeed, observers' gardens were the main



reported habitat. The extreme north-east of Hampshire also produced dense clusters around Aldershot and Farnborough, but there were large gaps over most of the remainder of the county.

The Hampshire results are interesting in relation to an analysis of the 1998 records across the beetle's entire range in England. According to Dr. Roger Key of English Nature, the analysis shows a striking relationship with the warmth of the climate, as measured in accumulated degree-days per year. It tends to get cooler not only with increasing latitude, but also with increasing altitude. Altitude may therefore explain the results from Hampshire where the broad sweep of the high chalk downland largely coincides with the largely blank area on the Stag beetle map.

Hampshire's 1998 records range as far west as Ringwood, but the beetle was also found 180 km further west-north-west in the Minehead area of Somerset. This appears to be the western edge of the Stag beetle's range and is now being targeted by the PTES for further survey, together with other localities near the Bristol Channel coast at Bridgwater and Yatton, where other 1998 sitings were made. The PTES can be contacted at:

15 Cloisters House, 8 Battersea Park Road London SW8 4BG
(tel. 0207 498 4543; fax 0207 498 4459;
e-mail andrewmoodie@excite.co.uk).

The county of Worcestershire seems to contain the most northerly English population of the Stag beetle, but records from the 1998 survey were very sparse even a little further south in Gloucestershire. According to the Gloucestershire Invertebrate Group Spring 1999 Newsletter, the county's only records were at a garden in Apperley, which is north-west of Cheltenham and in the High Street of Newent near the Herefordshire border. At the Apperley site, the Group set up a habitat creation exercise by partially burying about twenty 2 metre-long ash logs in local authority-owned land adjoining the garden where the siting was made.

Pond surveys and projects in Peterborough, eastern England

Peterborough is perhaps best known as the headquarters of English Nature and the Joint Nature Conservation Committee. Set in a flat landscape of intensive agriculture and industrial development, it is not nowadays noted much for its wildlife. It does, however, have many clay-pits which have become important as brownfield habitats. In the context of the brownfield versus greenfield development debate, an



em in *ICN* 28 mentioned Orton Brickpits south of Peterborough, which may be nationally important for dry grassland insects. Brickpits in and around the city also contain pools and ponds, among which the most noteworthy are perhaps those at Dogsthorpe Star Pit, where ecological conditions give rise to brackish aquatic habitats, usually found only in coastal areas.

The January 2001 issue of *Wildlife Action*, the magazine of the Wildlife Trusts for Bedfordshire, Cambridgeshire, Northamptonshire and Peterborough reports that a new restoration scheme is to take place at Dogsthorpe Star Pit, following its acquisition by the Trust in 1997. Over the years that the Pit was worked for clay extraction, an interesting flora and invertebrate fauna developed, especially in association with the brackish pools. When extraction ceased in 1993, so did the regular pumping of water from the pit. This caused excessive flooding of the habitats, but the Trust has now acquired commercial sponsorship through landfill tax credits to control the water level and to provide facilities for visitors. Now the site is set to become a superb 36 ha urban nature reserve.

Other clay ponds in Peterborough have been surveyed for their wildlife status under the Peterborough Countryside Protection Project. Within the 70 ponds surveyed, project officer Philip Precey has found over 55 species of aquatic invertebrates, including some good populations of water beetles, two Red data book species and seventeen nationally scarce species. He also found, unfortunately, that almost a quarter of the ponds held invasive exotic water plants such as Parrot's feather and New Zealand pygmyweed. These plants have no natural enemies and can displace native fauna and flora by dominating water bodies. In the city itself, there were three ponds that contained exotic terrapins, abandoned pets that can devastate the native fauna.

Noble chafer in Gloucestershire

In the Winter 2001 issue of its magazine, the Gloucestershire Wildlife Trust reports a discovery of one of Britain's rarest chafers, the Noble chafer, *Gnorimus nobilis*, in this county of SW England. As mentioned in *ICN* 25, this deadwood-inhabiting beetle was one of the species being surveyed in the Wyre Forest area of the neighbouring county of Worcestershire in 1997-98 with the support of English Nature. The Gloucestershire find was in an orchard and orchards will be targeted for surveys by the county's Invertebrate Group.



RESEARCH NOTES

Biocontrol of banana pests

The March 2000 issue of "Biocontrol News and Information" included a special set of articles on this topic, focusing mainly on the Banana weevil *Cosmopolites sordidus*, which causes serious decline and mortality of all types of cultivated banana. One of the authors, Simon Gowen, writes that this species was first recorded on banana in Guadeloupe in 1889 and has since become distributed throughout the banana-growing areas of the tropics on propagation material. Regarding control, he points out interestingly that biocontrol of this weevil is not a new idea, but was virtually forgotten in the era when chemical insecticides reigned supreme.

The first attempt at biocontrol was made in Fiji by Frank Jepson, the Government Entomologist, by the release of predatory insects collected from Java in 1913. These included the histerid beetle *Plaesius javanus* which was subsequently released also in other countries but never became established. With the subsequent development of insecticides, it became standard practice to use environmentally harmful chemicals such as the organochlorine compound Aldrin in countries where the weevil had become a serious pest, such as Uganda. In the second half of the 20th Century, the development of organochlorine tolerance in the weevil's populations led to a quest for alternatives, but only in the last decade has this insect again become a target for biocontrol research.

The most effective agent for controlling *C. sordidus* has so far been the fungus *Beauveria bassiana*, which has been used with success in Uganda and Brazil. Also, entomopathogenic nematodes (*Steinernema* spp. and *Heterorhabditis* spp.) have given promising results in field trials in Brazil and Australia. A slightly more novel approach is the use of fungi, collectively known as endophytes, which colonise the plant tissues without causing any damage. Some of these produce toxins which defend the host plant against invading insects and nematodes. Others can control the invaders by active colonisation. Research workers in Uganda have been identifying strains of protective endophytes and have, for example, found endophytic strains of the fungus *Fusarium* which can kill a high percentage of eggs and larvae of the weevil.

Although biocontrol agents have a useful potential, they will probably need to be used in conjunction with other measures by way of integrated pest management (IPM). Such measures include various



forms of sanitation, trapping (perhaps aided by the use of pheromones), the use of clean planting material and the development of resistant cultivars of banana.

Flightless ladybirds as biocontrol agents

The use of ladybird beetles (Coccinellidae) is one of the best known and well established forms of biocontrol of insect pests and has long helped to reduce the need for harmful pesticides. Ladybirds do, however, tend to migrate away from crops when the pest population is dropped, thus giving the pest a chance to recover unless other some form of low-level control is also in place.

Research in French hop gardens has demonstrated the value of using a flightless strain of the ladybird *Harmonia axydis*. This study, reported at an international conference in Montpellier in 1999 and abstracted in the March 2000 issue of *Biocontrol News and Information*, was conducted by workers at the Alsace station expérimentation at Wiwersheim, France. They achieved good control of the Damson hop aphid, *Phorodon humuli* by releasing adults of the flightless ladybird.

In the period immediately after their release, adults are far less effective as predators than third-instar larvae. If, however, they lay numerous eggs on or near the crop plants, their offspring can be very effective in controlling aphids later in the season. The problem with normal adults is that they often fly away before laying eggs, but the flightless mutants stayed mainly within the hop garden, while dispersing locally within the area.

Dropping insecticide usage allows ants to control cashew pests

The artificial release or augmentation of biocontrol agents can greatly reduce the need for pesticides. There are, however, some situations where naturally occurring enemies of pests need no more encouragement than the reduction or cessation of unnecessary pesticide usage. An interesting example is explained in the Proceedings of the Symposium on Biological Control in the Tropics, held in Malaysia in 1999 and abstracted in the March 2000 issue of *Biocontrol News and Information*.

The authors of the paper, P. Renkang, K. Christian and K. Gibb, measured yields of cashew nuts in Northern Territory, Australia over a four-year period. They found that yield was positively correlated to colonisation by the Green ant *Oecophylla smaragdina*, which is a



predator of pests on cashew. Indeed, the degree of colonisation accounted for 83-90% of all the variation in yield. There were no ants on trees treated with insecticide but, within two years of stopping insecticide treatment, the trees were 80% colonised by these natural predators.

FUTURE EVENTS

The 2001 Peterborough conference

As mentioned in "News, Views and General Information", the first two Peterborough conferences set the scene for the establishment of the Invertebrate Conservation Trust. The third conference will provide an opportunity to debate the future work of the ICT.

Date: Saturday, 31st March 2001
Time: 10.00 a.m. (ends c. 5.40 p.m.)
Place: Central Library, Broadway, Peterborough
Admission: Free, but probably by ticket only

Invitations will be sent to individuals and the delegates of organisations who attended the last conference, but it is hoped that seats will also be available on request. Enquiries can be Stubbs (Tel.) 01733 346648.

Wiltshire Wildlife Trust events

- Monday 12th March: (Warminster Local Supporter Group) Indoor talk at 7.30 p.m. by Frank Lowe on moths and his work recording them; to be held at The Assembly Rooms, Warminster. Info. from Frank Lowe (Tel. 01985 840266); bus timetable enquiries on 08457 090899
- Thursday 26th April: (Calne Local Supporter Group) Indoor talk at 7.30 p.m. by Donna Phelps on spiders; to be held at Marden House, The Wharf, Calne: entrance £1. Info. from Robin Peck (Tel. 01249 812676); bus enquiries see above.

The Wildlife Trusts (Cambs., Beds. and Northants) events

- Sunday 18th March: (Cambridge Group) Scrub clearance for Chalkhill blue butterfly conservation on the Devil's Dyke Contact Julia Napier (Tel. 01223 213152)



Thursday 12th April: (Cambridge Group) Indoor talk at 7.30 p.m. by Dr. Val Perrin on butterflies in Cambridgeshire and beyond; to be held at Gilmour Building, 47 Bateman Street, Botanic Gardens, Cambridge. (Entrance fee £1 Trust Members; £2 non-members. Info. from Robert Good (Tel. 01223 812126)

Biodiversity Training Workshops include the following to be led by Brian Eversham; (1) woodlice on Sunday 11th March (10.00 to 16.00) at Priory Country Park, Bedford and (2) slugs and snails on Sunday 22nd April (10.00 to 16.00) at Graffham Water Nature Reserve, Cambridgeshire.

The fee for each is £15 – details from Vera Herman (Tel. 01604 405285; fax 01604 784835; e-mail vherman@northwt.cix.co.uk)

Cambridgeshire & Isle of Wight Wildlife Trust events

Thursday 12th April: Indoor talk at 7.30 p.m. by Martin Harvey on common insects and their habitats; to be held at Eastney Community Centre; admission £1.50. Info. from Mike Harris (Tel. 02392 384538).

Saturday 21st April: Indoor talk at 2.30 p.m., jointly with Butterfly Conservation, by John Ayres on "Comings and Goings in the World of Butterflies and Moths", to be held at St. James Church Hall, Kings Road, Fleet (map ref. SU 819 542): entrance free but donations requested.

Tuesday 24th April: Indoor talk at 7.30 p.m., by Robin Robins on "Cowpats to Cornflowers, the Life of Hoverflies", to be held at St. Mary's Hall, Fordingbridge (map ref. SU 145 139): entrance £2.50 incl. refreshments.

Saturday 19th May: Guided tour of chalk grassland with Mark Langford (please contact on: 07831 692963) to see butterflies, including Brown argus and Green hairstreak, to be held at St. Catherine's Hill, nr. Winchester. Meet at 2.00 p.m. (map ref. SU 484 281), parking in Garnier Road car park; admission free; stout footwear and suitable clothing recommended.

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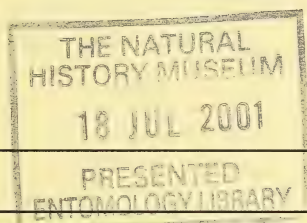
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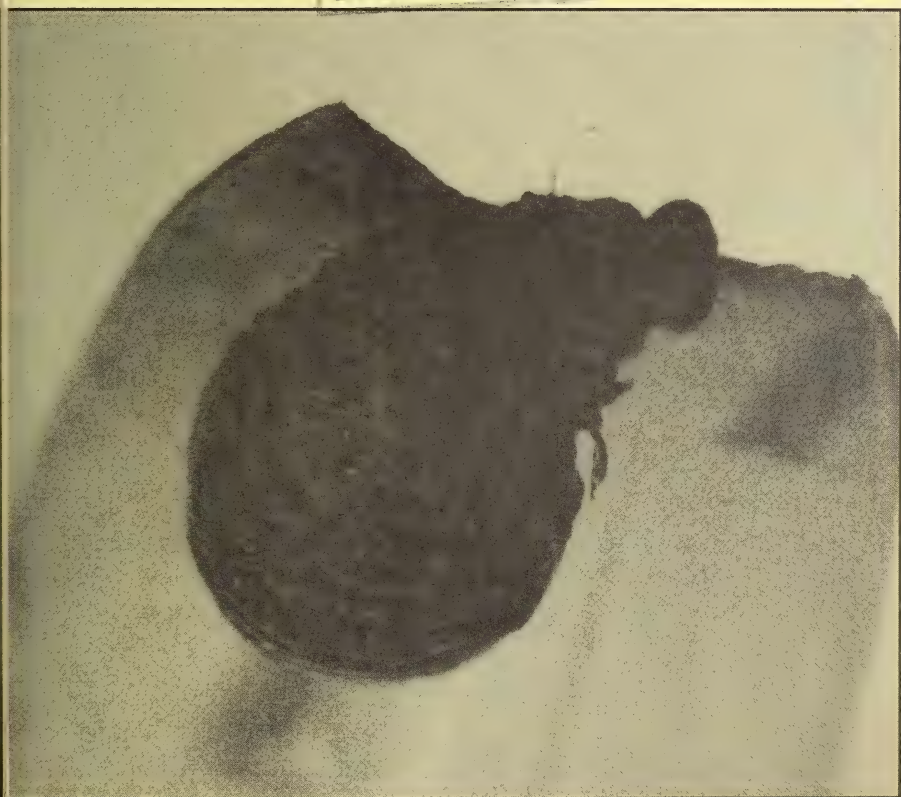
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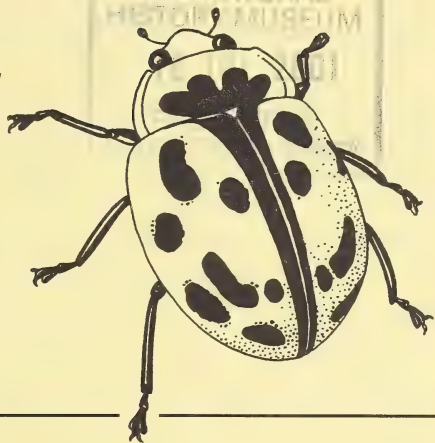
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INVERTEBRATE CONSERVATION NEWS



No. 35, June 2001

EDITORIAL

In much of the UK, May brought the first prolonged spells of dry and sunny weather since last autumn. A succession of vigorous and slow-moving depressions brought record autumn and winter rainfall to many regions, which resulted in repeated or persistent flooding of low-lying sites. The human misery and inconvenience received much publicity, but the mass media paid relatively little attention to the possible effects of the flooding on wildlife.

Seasonal or occasional flooding occurs quite normally in the floodplains of rivers and is a situation to which some of the resident invertebrates are quite well adapted. If flooding occurs when invertebrates are active, they may escape drowning by moving to tall vegetation or higher ground. For hibernation, some invertebrates seek refuge in trees and shrubs or in the hollow dead stems of tall herbaceous plants, such as hogweed *Heracleum sphondylium*, and are therefore to some extent already prepared to escape possible floods.

Problems for invertebrate survival may arise when floods are higher and more prolonged than normal, as has been the case recently in the UK. There may also be problems if potential refugia have previously been destroyed by agricultural or other practices. Habitat isolation is another factor that may be important, as it may prevent the re-colonisation of areas in which flooding has wiped out localised populations of vulnerable species.

It was perhaps encouraging, at least in the UK, that the flooding provoked some public debate about housing developments in floodplains. The construction of new homes in risk-prone sites brings about a need or desire for flood defences, which may be very damaging to aquatic and riparian wildlife. The dynamics of river flow



are altered and river bank habitats may be destroyed or seriously degraded. Although few people seem to care about the invertebrates that depend on these habitats, it is good that the needs of vertebrates such as otter *Lutra vulgaris* and Water vole *Arvicola amphibius*, which are shared by many invertebrate species, are being increasingly addressed.

Another effect of heavy rainfall, coupled with accompanying strong winds and waves, is an increase in the rate of coastal erosion. As this has economic implications and sometimes even leads to the loss of homes and livelihoods, there is much pressure to install or strengthen coastal defences such as sea walls. As with flood defences in river valleys, the results can be devastating for invertebrates. In particular, specialised and rare species dependent on soft-rock cliffs could die out if normal erosion processes are prevented.

It is perhaps ironic that, as *macho* politicians and developers seek to tame our rivers and fossilise our coastlines, the very forces that they seek to suppress are probably gathering strength as a result of human activity. Global warming, widely believed to be caused by greenhouse gas emissions from fossil fuel usage, seems set to have major effects on invertebrate populations, not all of which may seem undesirable. One thing, however, seems certain: for species whose habitat is likely to diminish due to climate change, survival will be all the more difficult if suitable remaining niches have become isolated.

NEWS, VIEWS AND GENERAL INFORMATION

Invertebrate Conservation Trust: more developments

As mentioned in *ICN* 34, a third Peterborough conference was scheduled for 31st March 2001, as a means of launching this new organisation within a forum of UK conservation and natural history organisations. Between sixty and seventy individuals attended, representing most of the relevant national bodies and various local ones, such as county trusts. There was a re-affirmation of support for the Trust as a promoter of invertebrate conservation across the full taxonomic front.

At some future stage, it is hoped that the Trust will have a full public launch. It is however, still in the process of planning the appointment of its first two members of paid staff, which has become possible due to an anonymous donation. The Trust has already obtained Limited Company status and has a small board of Trustees. At the time of writing, it has an application for charitable status under consideration.



Foot and mouth disease

People who study invertebrates in the field, both professional and amateur, will be only too well aware of the restrictions that have been placed on their access to land in the UK in recent months. Apart from the resulting frustration and (in some cases) loss of income, to humans, there are likely to be some effects on invertebrate populations. Negative effects may include the loss of grazing in areas managed for wildlife. There will also be a regional decrease in the availability of dung as a habitat, but this resource was already reduced in value in many cases owing to contamination with ivermectin and other veterinary drugs.

Although the foot and mouth disease outbreak (estimated to be the world's worst since records began) has been devastating for many farmers and those dependent on tourism, it seems to be prompting a welcome re-think about agricultural policy in the UK. The provision of grant aid in the form of "headage" payments is a particular system that may come under strong scrutiny. It has encouraged over-grazing and the ploughing, re-seeding and fertilising of marginal hill land to the detriment of wildlife. Indeed, one of the short-term effects of the removal of grazing animals from some areas may be that wild plants and animals will have a boost this year. In the long term, maintenance of grassland habitats depends very much on grazing, but not on over-grazing.

New support for brownfield conservation: a report from the London Wildlife Trust

A growing number of wildlife organisations in the UK have joined ICN in flagging up the importance of so-called brownfield sites, not only for wildlife *per se*, but also for people's opportunity to study and enjoy wildlife at first hand. The problem is that brownfield sites are seen by environmental organisations and by politicians as the first choice for accommodating the excessive demands for land for new housing in the south-east of England. If the alternative is to carpet the countryside with bricks and mortar, such a view is understandable, but it sadly ignores the value of brownfield sites.

In view of the importance of brownfield for the wildlife of a large city like London, it is particularly significant that the London Wildlife Trust has added its voice to the debate. It has published a report which calls for a change of attitude to brownfield sites, both at regional and national levels. Jenny Schofield, the Trust's conservation manager, comments on the report in "Wild London" magazine. She refers to a



government white paper which describes brownfield sites as “wasted assets” and she comments that they are... . “seen by the majority of planners and developers as a generic class of contaminated, derelict and dangerous sites, whose only use can be to provide new development sites”. She adds that... “site evaluation needs to be based on thorough survey work that takes account of existing and potential wildlife value in the London context...”

Jenny Schofield’s commentary accompanies an article announcing that the Trust will soon acquire a new reserve at a site that could be classed as brownfield, even though it lies within designated Green Belt. This is Braeburn Park, in the Crayford area of the London Borough of Bexley. It has a history of gravel extraction, followed by the recycling of waste building material. Since the mid 1960s, when the industrial activity ceased, the site has become an oasis for wildlife but was threatened by housing development until the Trust responded to an offer from the owner to allow it to be managed as a reserve.

The Trust featured another very valuable brownfield site in the previous issues of its “Wild London” magazine, this being the Ripple Nature Reserve, a former ash dumping ground in Barking, east London. Four hundred and eighty-five species of invertebrates have been recorded in a sponsored survey there, including six British Red Data Book insects.

SITES AND SPECIES OF INTEREST

Misson Fen, Nottinghamshire

The Nottinghamshire Wildlife Trust has announced its acquisition of this very important 85 ha (210 acre) site in the north-east Midlands of England. The site was once a Ministry of Defence bombing range and was therefore spared from intensified land use. It now contains the only surviving fragment of fenland in Nottinghamshire and supports a wealth of wildlife. As pointed out recently by Dr. Sheila Wright of Nottingham Natural History Museum, there is already some information about an interesting invertebrate fauna at the site and an article about this is planned for a future issue of *ICN*.

Severn Vale: plans for floodplain conservation

In view of concerns about inappropriate development of floodplains, it is good news that the Gloucestershire Wildlife Trust is planning to protect and re-create wetland habitats throughout an area of about 1500 ha (3700 acres) in the Severn Vale in western England.



Writing in the Trust's magazine, Head of Conservation Colin Studholme describes two nature reserves that the Trust already owns within this area. One of these, at Ashleworth Ham, is said never to have been treated with pesticides or artificial fertilisers, unlike the surrounding arable land in the Severn Vale. The Trust intends to re-create wetland habitats in its other reserve at Coombe Hill Canal and then elsewhere if it can acquire more land in the area. Much will, however, depend on the adoption of environmentally-friendly farming practices in the wider countryside, helped by incentives such as the UK government's Countryside Stewardship Scheme.

Another designated site in the Severn Vale, a Site of Special Scientific Interest (SSSI) known as Severn Ham, is owned by Tewkesbury Town Council. This island of alluvial flood meadow at the confluence of the Rivers Avon and Severn was visited last year by members of the Gloucestershire Invertebrate Group. There has been some agricultural improvement of grassland at the site, but fertilisation has been discontinued within part of the site.

The SSSI citation for Severn Ham does not refer to any invertebrate interest, but an English Nature management plan mentions "invertebrates of local interest" and the Nationally Scarce ground beetle *Bembidion semipunctatum*, which occurs on the muddy river banks. This species was not found during the group's visit but another uncommon ground beetle, *Clivinia collaris*, characteristic of sandy river banks, was found. Also a new Nationally Scarce species was recorded for the site, the woodlouse *Trachepilus rathkei*, which was found in flood debris.

Orthoptera survey in Staffordshire

A survey of the grasshoppers and crickets of this county in the north-west Midlands of England, is being mounted by Andy Jukes of the Staffordshire Wildlife Trust. Species which were once confined to more southerly parts of the country are expanding their ranges northwards, and some like the Speckled bush cricket *Leptophyes punctatissima* have recently been recorded in Staffordshire for the first time. Anyone wishing to provide records is invited to contact the Trust for further details (tel. 01889 508534 / 509800).

Butterfly action plan by Forest Enterprise (Great Britain)

As reported in the April 2000 to March 2001 Lepidoptera Conservation Bulletin, Forest Enterprise has a "Species Action Plan for Butterflies", which lists 113 woods (most of them over 100 ha in size) in Great



Britain where special management is to be set up for the benefit of butterflies. About half the sites are placed in "Class A" because they contain species that have priority status under the UK Biodiversity Action Plan, while the remainder have other species that are in decline. The management, as planned with Butterfly Conservation, will include ride-widening, coppicing and the re-scheduling of felling cycles. The priority species concerned are Pearl-bordered fritillary *Boloria euphrosyne*, Chequered skipper *Caterocephalus palaemon*, High Brown fritillary *Argynnis adippe*, Marsh fritillary *Euphydryas aurinia*, Heath fritillary *Melitaea athalia*, Northern brown argus *Aricia artaxerces* and Adonis blue *Polyommatus bellargus*.

Some flood victims in Surrey

As mentioned in our editorial, the unusually high and prolonged floods in England have probably led to increased winter mortality amongst invertebrates in low-lying areas. Some examples of this are described in an interesting report, published in the Surrey Wildlife Trust's magazine, describing a snail survey near the River Thames to the south-west of London. The site surveyed was Chertsey Meads, part of the Runnymede area, where molluscs had not been previously recorded. During a visit with Dr. June Chatfield in December 2000, Isobel Girvan the Trust's Consultancy Officer, recorded about 20 species of mollusc, a figure which could probably be exceeded by doing some more surveys at other times of year. Her report includes a map of the area, produced by the Surrey Biological Records Centre.

At the time of the survey, the Thames was above its normal level and was threatening to overflow its banks. The unusually wet conditions already seemed to have led to the death of various molluscs and other invertebrates. Large numbers of the Netted slug *Deroceras reticulatum* and Bourguignat's slug *Arion circumscriptus* had drowned due to a lack of vegetation tall enough to have provided refuge from the floods. In some areas, woody stems or long grass around wooden posts had provided refugia for invertebrates, but insufficiently for quite large numbers of insects such as the 16- and 22-spot ladybirds *Tytthaspis sedecimpunctata* and *Psyllobora vigintiduopunctata*. Conversely, there were aquatic species, such as the Common Bithynia snail *Bithynia tentaculata*, which had perished by being stranded on grass at the water's edge.

The most fortunate species seemed to be those living in emergent vegetation at the water's edge, such as the Slippery moss snail *Cochlicopa lubrica* and the Shiny glass snail *Zonitoides nitidus*. Isobel



Girvan draws attention to the importance of bankside habitat structure, whereby invertebrates can seek refuge in tall vegetation or move lower down to enjoy warmer conditions at the soil surface.

The importance of trees and shrubs within grassland: news from a Gloucestershire site

One of the sites visited by the Gloucestershire Invertebrate Group last year was Debdene Banks, a calcareous grassland in the Cotswold hills of England. The group was allowed only to visit the east-facing slopes of the dry valley occupied by this pasture. As the grassland is unimproved, it was hoped to find some interesting grassland invertebrates, but there had evidently been periods of heavy grazing by sheep. As a result, the invertebrate fauna had become very impoverished, even within an area where a recent lull in grazing had allowed a wide range of plant species to flower. Only two uncommon invertebrates were found, the snail *Helicella itala* (an old limestone grassland species, which was represented by a single individual) and the bumblebee *Bombus rupestris*, which is a "cuckoo" on the Large red-tailed bumblebee *B. lapidarius*.

The group's visit showed the importance of being aware of all types of habitat in a site; not just the type(s) for which it is best known. At Debdene Banks, habitats associated with trees and shrubs proved to support more vulnerable species than the over-grazed grassland. One of these was a Nationally Scarce darkling beetle, *Scaphidema metallicum*, which was found by David Scott-Langley on a hawthorn log under scrub. It is an apparently declining deadwood species, which seems to favour old scrub and hedgerows and is confined within Gloucestershire to the Cotswold dip-slope valleys.

Of the many other invertebrates that were found in association with trees and scrub in this area, three were of Nationally Scarce status. These were a plant bug *Psallus albipunctatus* (new to the county list) and the soldier beetles *Malthinus frontalis* and *Rhagonycha lutea*. Also, the area produced the most spider species of any of the group's field meetings in 2000. These included uncommon species associated with tall and scrubby vegetation such as *Dictyna latens*, *Theridon tinctorum* and *Araniella opisthographa*.

Stag beetle publication from London Wildlife Trust

London, especially south of the River Thames, is one of Britain's main strongholds for the globally threatened Stag beetle, *Lucanus cervus*. As this species is legally protected in the UK from certain activities such as



unlicensed trade, the London Wildlife Trust has produced an advice note to explain the legal requirements and their implications for planning. Copies of the publication, which is supported by English Nature and the People's Trust for Endangered Species, can be obtained by telephoning 0207 261 0447.

Europe-wide decline of moth species

The Autumn 2000 issue of "Butterfly Conservation News" includes an item based on information exchanged at the 12th Congress of European Lepidopterology in Poland. It seems that several moth species that are threatened in the UK may be in serious decline throughout Europe. The worst cases of decline include the Heart moth *Dicycla oo* and the Orange Upperwing *Jodia croceago*. Plans are reported for a pilot scheme to determine the European status of other moths that are on the UK priority list.

Re-discovery of a putatively extinct Australian stick insect, *Dryocelus australis*

In his AES book, *The Amazing World of Stick and Leaf Insects* (1999), Paul Brock mentions a large reddish brown phasmid, *Dryocelus australis*, which used to occur on Lord Howe Island, Australia. It was thought to have become extinct in 1918, having apparently been exterminated by introduced rats; a fate suffered by a number of large invertebrates endemic to islands. A very small population has, however, been recently discovered by a biologist and a wildlife ranger on a rocky islet called Ball's Pyramid about 14 miles (23 km) from the main island. Remains of the insect had previously been found on the island and it had also been reported by rock climbers to be surviving there. Since, however, these reports dated back to the 1960s and had not been confirmed by later surveys, the discovery of an extant colony is something of a surprise. It is intended to re-establish the species on Lord Howe Island.

Species under threat from brownfield developments in Plymouth, Devon

The Devon Invertebrate Forum's February 2001 Bulletin includes an article by Andy Stevens, the Nature Conservation Officer for the City of Plymouth in SW England (tel. 01752 304578; e-mail: andy.stevens@plymouth.gov.uk). He is concerned about the paucity of invertebrate records for the city, especially because some species are apparently threatened with local extinction due to new urban



development. For example, the current records show that the last remaining strongholds of the Dingy Skipper butterfly *Erynnis tages* in Plymouth are on brownfield sites where development seems imminent. Other invertebrates in a similar plight, according to available records, include the millipedes *Brachyaeteuma fasciata* and *Leptoiulus belgicus*. The former is under severe pressure from developments and the latter is known only from a single station.

Management for aquatic habitats at Braunton Burrows, Devon

The Braunton Burrows sand dune system in Devon, SW England, is well known for its wealth of invertebrate life and has enjoyed protection as a nature reserve. However, as pointed out in a recent article by the Warden John Breeds and the AES Habitat Conservation Officer Dr. Peter Sutton, the area has been affected by drainage operations on surrounding land during the 1980s and 90s. Writing in the Devon Invertebrate Forum's February 2001 Bulletin, they draw particular attention to the deepening of the Western Boundary Drain between the Burrows and Braunton Marsh. This led to a drop of more than 1 metre in the water table in the southern part of the Burrows. The northern area suffered similarly when drainage was installed on the Saunton Golf Links and at a wet meadow for agricultural purposes.

The drop in water table would have affected some of the 24 ponds which are present within the dune system and which support 17 species of dragonflies and damselflies. The ponds were created partly by wartime activities and partly by conservation management under English Nature. Scrub and pond vegetation are managed on a rotational basis to maintain the areas of open water that the Odonata and other invertebrates require. Also, in response to the lowering of the water table, some of the ponds have been deepened. It is reported in the article that two of the 17 Odonata colonised the area in the mid 1980s due to the creation and enhancement of these aquatic habitats. These were the Emerald Dragonfly *Lestes sponsa* and the Black Darter *Sympetrum danae*.

RESEARCH NOTES

In *ICN 34*, we mentioned some research on the use of a flightless variant of a ladybird *Harmonia axydis* as a biocontrol agent against the Damson Hop aphid *Phorodon humuli*. This showed an example of the possibilities for improving the efficacy of biocontrol enough to compare favourably with chemical control, which is usually more



environmentally harmful. We now look at a few more pieces of research involving factors which can either increase or decrease the effectiveness of biocontrol agents against aphid pests.

Biocontrol of ant-attended aphids by a ladybird

In the ladybird study reported in *ICN* **34**, the problem to be overcome was the tendency of adult ladybirds to disperse from a release site before giving rise to enough larval offspring to provide good aphid control. Another problem with ladybirds is that they often fail to control ant-attended aphids. The ants deter the ladybirds from preying on the aphids and can even kill them.

In research done in Germany several years ago (*Journal of Insect Behaviour*, 1995, **8**: 653-670), W. Völki found that a ladybird *Platynaspis luteorubra* had special adaptations for preying upon ant-attended aphid colonies. Indeed, its larvae were found more frequently in ant-attended colonies than in unattended ones. The larvae were observed to escape detection by the ant *Lasius niger* by virtue of their unusual shape, by inconspicuous movement and presumably by chemical camouflage. Although the ants tried to attack the pupae of the ladybird, they were deterred by the covering of dense hairs. Adults were also challenged but were able to survive either by fleeing or by pressing their bodies close to the plant surface. There was also some evidence that the ladybirds were gaining some protection from parasitoids when feeding on ant-attended aphid colonies, as fewer of their larvae were parasitised than in unattended colonies.

Non-lethal effects of an aphicide: how to treat a lady?

When the selective aphicide pirimicarb was first marketed some years ago, some of the advertisements claimed that the manufacturers knew "how to treat a lady" because the product allowed natural predators of aphids, especially aphids, to survive. While it is certainly far better environmentally to use such selective pesticides than broad-spectrum ones, there are still some problems. In the case of pirimicarb, it initially proved so effective against aphids that their natural predators probably often starved for lack of prey or moved elsewhere. Another interesting slant on the effects of this aphicide on natural enemies was shown by some research done at Rothamsted Experimental Station in England (*Biocontrol News and Information*, 1996, **17**: 8N).

In the research, P. A. Umoru, W. Powell and S.J. Clark found that the treatment of oilseed rape (canola) plants with pirimicarb affected the



foraging behaviour of the parasitoid wasp *Diaeretiella rapae*. Quite apart from any effect of the shortage of aphid hosts on sprayed plants, the presence of pirimicarb seemed to make the parasitoid avoid the leaf surfaces. This deterrent effect would of course not make much difference if all the aphid-prey had been poisoned anyway. There are, however, pirimicarb-tolerant populations of some aphids such as *Myzus persicae*. The sub-lethal effects of the aphicide on parasitoids may therefore compromise natural control of aphids that it fails to kill.

Biocontrol agents with different habitat requirements as larvae and pupae

Invertebrate conservationists are generally more aware than others of the need for many species to have adequate habitat for all the stages in their life cycles; not just the most photogenic ones. For some of the natural enemies of aphids, such as hoverflies and lacewings, it is the less showy stages – i.e. the larvae – that are valued by humans.

Research done in Europe and New Zealand has shown the benefit of providing pollen and nectar sources for adult hoverflies, whose larvae are useful predators of aphid pests. In a New Zealand study by A.J. White, S.D. Wrattan, N.A. Berry and U. Weigmann, (*Journal of Economic Entomology*, 1995, **88**, 1171-1176), field border sowings of the annual plant *Phacelia tanacetifolia* boosted hoverfly populations and improved aphid control. Such findings seem to lend support to systems in which wild plants on unsprayed field edges or strips across large fields are encouraged as a habitat for wildlife and natural control agents. In the New Zealand study, however, natural vegetation did not support as many adult hoverflies as the specially sown strips.

FUTURE UK EVENTS

All field events in the UK are subject to possible change or cancellation during the outbreak of foot and mouth disease. Anyone wishing to attend a meeting should first contact the leader concerned.

British Entomological and Natural History Society field meetings

As usual the BENHS has a full and interesting programme of field meetings (foot and mouth disease allowing), details of which have been circulated to its members. Here is some information about a small selection of BENHS meetings with special relevance to the recording of UK Biodiversity Action Plan (BAP) species.



- Friday 20th to Sunday 22nd July and again Friday 27th to Sunday 29th July: Abernethy Forest and Insh Marshes RSPB Reserves, Inverness-shire. These are moth-trapping weekends, starting at 17.00 on Fridays (for MV trapping), which can be joined at any stage by BENHS members (and presumably others if they could please first check with the contact person). Records of all invertebrate groups will be welcomed, especially of several UK Biodiversity Action Plan moths. Leaders for both meetings are James Cadbury and Matt Shardlow (tel. 01767 680551; matt.shardlow@rspb.org.uk).
- Saturday 21st July: Thorne Moors, Yorkshire, the largest lowland raised mire in Great Britain, which supports many rare invertebrates (see Research Notes in ICN 22). Meet at 11.00 and again at 20.00 for MV trapping at the car park at the end of Grange Road (SE 701159), Moorends, Thorne. Leader: Andy Godfray (tel. 01226 384022).
- Saturday 21st July: Tilshead, Salisbury Plain, Wiltshire, where the main aim is to investigate the status of a BAP moth, the Brighton Wainscot *Oria musculosa*, for which the BENHS Conservation Working Group has responsibility. Meet at 19.30 (for MV trapping) at the triangle in the centre of Tilshead Village on the A360 Tilshead to West Lavington Road. Leader: John Phillips (tel. 02392 460437).
- Saturday 4th August: Windsor Forest and Great Park, Berkshire, jointly with the Berkshire Network for Invertebrate Conservation. In addition to general recording, one target moth species is the Light Crimson underwing, not seen in Berkshire for 15 years.
- Saturday 18th August: Tunstall Forest, East Suffolk, to search for adults of the Square Spotted clay moth *Xestia rhomboidaria*, a UK BAP priority species for which the BENHS Conservation Working Group has responsibility. Meet at 19.00 for MV and torch-light/Tilley lamp trapping at Gate 22, Sandgalls car park (TM 381559). Leader: David Young (tel. 01728 688992).

Gloucestershire Invertebrate Group field meetings

- Sunday 22nd July: Tewkesbury disused railway and Ministry of Defence (MoD) Ashchurch Depot. According to the Group's newsletter, the old railway cutting contains Gloucestershire's largest colony of glow-worms *Lampyrus noctiluca*. The aim is to see what



else is there. It may also be possible to visit the nearby MoD site which has patches of herb-rich and base-rich grassland. Meet at 10.30 a.m. in the Safeway Car Park, Tewkesbury, SO 900329 Contact Keith Alexander (Tel. 01285 651171).

Conchological Society field meeting (*the following event has been advertised by the **Gloucestershire Invertebrate Group**, whose members are invited. Others who would like to attend should first approach the named contact person both for courtesy and details.*)

- Saturday 28th July: Gloucestershire aquatic sites: provisionally Purton Timber Ponds and Walmore Common, with emphasis on pond dipping and ditch sampling. Contact point: David Long (Tel. 01242 527673).

Courses and workshops

- This summer, the Wildlife Trusts (Cambs., Beds. and Northants) are running more biodiversity training workshops, including the following: (1) Brian Eversham on woodlice, Sat. 14th July at Priory Country Park, Bedford; (2) Adrian Colston on grasshoppers and crickets, Sat. 28th July at Milton Country Park Cambs.; (3) Phil Horsnail on moth identification and breakfast at Pilsford Reserve, Northants; (4) Ruary McKenzie Dodds on dragonflies, Sat. 25th Aug. at the National Dragonfly Museum, Oundle, Northants; (5) Brian Eversham on ants, Sun. 9th Sept. at Lings Wood National Nature Reserve, Northants. Except for the moth workshop, which runs from 07.30 to noon, the workshops are all timed for 10.00 to 16.00. The fee for each is £15 - details from Vera Herman (tel. 01604 405285; fax 01604 784835; e-mail vherman@northwt.cix.co.uk)
- The Field Studies Council is holding a weekend course on snails at Juniper Hall Field Study Centre during 26th to 28th October. Please call 0845 458 3507 for more details.
- The South Wales Wildlife Trusts are advertising a two-day course on spider identification and ecology with Stan Dobson and Michael Kilner at Glyn cornel Environment Centre on Saturday and Sunday 14-15th July. Course fee £60 non-resid. or £100 resid.; venue is close to Llwynypia railway station. Details from Tim Orrell, tel. 01433 431727, e-mail glyncornel@rhondda.cynon-taf.gov.uk

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INVERTEBRATE CONSERVATION NEWS



No. 36, October 2001

EDITORIAL

Those of us who care about the survival of invertebrate wildlife are clearly not all cast in the same mould as far as attitudes to wider environmental issues are concerned. Not everyone who mourns the loss or degradation of invertebrate habitats which he or she once fondly knew is greatly exercised by problems such as pollution and the waste of resources. People who campaigned against such things many years ago were often regarded as eco-freaks by less radically-minded members of the population, but times have changed. Although the eco-freak epithet is perhaps still merited by those at the extreme fringes of the conservation movement, an expression of concern about the environment has become socially acceptable and indeed politically *de rigueur*.

Now that the general public and the politicians have some awareness of major environmental problems, devotees of invertebrate conservation should feel no embarrassment about consorting with those who campaign on such issues. Indeed, wildlife conservation is not a realistic pursuit if it does not form part of a wider movement for the sustainable use of natural resources. If humans continue to take an increasing and unsustainable share of biological resources, it follows that other life forms will be adversely affected. It is believed that extinctions of species are already increasing at a rate unprecedented since the cataclysmic event that led to the extinction of the dinosaurs.

Those of us who live in prosperous western countries often tend to think of the destruction of tropical rainforests as the epitome of habitat destruction. This is indeed a very serious problem, and one without a modern parallel in western countries that have long since destroyed most of their primal habitats. And yet, we are scarcely qualified to preach to people in the Third World if we do not lead by example. The



harsh reality is that we have, as a society, tended to regard wildlife conservation as something that takes place principally in designated nature reserves and other sites, while allowing the wider countryside to become increasingly something of an ecological desert. We cannot level all the blame for this at farmers, if we create economic conditions that make it hard for them to make a living without squeezing out wildlife.

The problem is not simply one of agricultural policy. In response to the increase in our numbers and to changes in family structure and lifestyles, housing developments are swallowing up much of the green space in and around our towns and cities. Also, by demanding more and wider roads for motor vehicles, we are destroying habitats and creating barriers which disrupt the ability of many species to maintain their geographic distributions by dispersing between sites. Of those who add to the pressure for such devastation, and indeed who kill invertebrates in vast numbers when driving, some would no doubt frown upon the activities of people who collect invertebrate specimens. There seems something bizarrely hypocritical in the image that this conjures up.

If any lover of invertebrates feels hesitation in embracing wider environmental issues, he or she would do well to consider the gulf that seems to have opened up between wildlife and other conservation organisations as far as the greenfield versus brownfield debate is concerned. Although greenfield land is important for food production and for landscape, it has in many regions been largely robbed of its biodiversity by modern farming practices. As a result, brownfield land may often provide the last retreats for species whose habitats have been wrecked elsewhere. The generalist environmental organisations seem to support the politicians in campaigning for houses and factories to be built on brownfield, rather than greenfield sites wherever possible. Their view might yet be changed if they could be influenced more by people who understand the importance of brownfield sites for biodiversity, much of it being invertebrate biodiversity.

NEWS, VIEWS AND GENERAL INFORMATION

"Space, Hope and Clarity": a response to the UK Government's urban renaissance policy

As mentioned in our Editorial, the UK Government is currently seeking to protect greenfield sites by giving preference for so-called brownfield land to be used as construction sites, despite its often great value for wildlife and as an educational and informal recreational resource for



people. This policy has been enshrined in a White Paper (i.e. a statement of the Government's intentions for new legislation) entitled the *Urban White Paper* (see also *ICN* **35**: p. 3-4.).

Peter Shirley, Regional Director of the West Midlands Wildlife Trusts, has kindly sent us a copy of *Space, Hope and Clarity* (March 2001), the Urban Wildlife Partnership's formal response to the White Paper. While welcoming the principles of improving the urban environment and of urban renaissance, the Partnership has expressed deep concerns about some aspects of the White Paper. Of especial concern is the woefully inadequate attention paid to the natural environment and biodiversity. Indeed, these issues were not so much as mentioned in the Deputy Prime Minister's foreword to the White Paper. Even if the Government had deliberately set out to ignore wildlife habitats for their own sake, we might have supposed that some thought would have been given to the value that urban wild places have for people. The Partnership states that it is staggered that the White Paper mentions nothing of the value to people's health and welfare in having access to a healthy natural environment.

As a White Paper represents a near-final stage of Government policy, the Partnership's response is something of a rearguard action. This is a very disappointing state of affairs in view of the fact that the Partnership made a number of environmental proposals at an earlier consultative stage in January 2000. These proposals, which were largely ignored, included the need to take into account international obligations on biodiversity. Perhaps, however, the Government takes the attitude that its urban policies and its biodiversity policies are entirely separate things.

Far from merely criticising the White Paper, the Partnership makes a number of very constructive proposals for community involvement in retaining, enhancing and utilising areas of wildlife habitat within urban areas. It also acknowledges that there will sometimes be a need to use such areas for development. It proposes that, in such cases, the developers should be required to provide replacement areas of similar biodiversity value, by enhancing the biodiversity of other green spaces nearby.

Butterflies for the New Millennium

On 1st March, the *Millennium Atlas* was launched to much acclaim. It contains a wealth of information on British butterfly populations, much of it from the Butterfly Monitoring Scheme as was clear from a



presentation by Nick Greatorex-Davies at a recent indoor meeting of the British Entomological and Natural History Society. Although butterfly populations fluctuate greatly from year to year, there are now so many years' data from the Scheme that some very interesting long-term trends in populations of many British species can be discerned. A review of the *Atlas* appeared in the August 2001 edition of the the AES *Bulletin*.

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SITES AND SPECIES OF INTEREST

Gilkicker weevil has a lead partner in UK Biodiversity Action Plan

The Hampshire Wildlife Trust has taken over as the lead BAP partner for the so-called Gilkicker weevil *Pachytychius haematocephalus* and is planning some survey work. The UK distribution of this weevil is thought to be restricted to a short stretch of the south coast of England between Gilkicker Fort and Browndown in Hampshire. It has been



known from this area for over 100 years, feeding on the seed pods of common Bird's-foot trefoil, *Lotus corniculatus*, which grows there on banks and shingle.

Chalk and cheese: snail survey in Hampshire, southern England

In June 2001 the Hampshire Wildlife Trust published the results of a snail survey (the "Chalk and Cheese" project), which were compiled by the organiser Charlie Evans. The survey involved four chalk-loving snail species in and near the East Hampshire Hangers, an area of chalk and malmestone escarpments that forms the western end of the Weald in south-east England. (The eastern end extends just across the English Channel into France and Belgium.) The East Hampshire Hangers are well wooded, with many relict areas of ancient woodland.

Special attention was focused on the Cheese snail *Helicodonta obvoluta* (hence the name of the project), which earns its English name because its shell is in the form of a thick disc with the shape of a Cheddar cheese, although only about 15mm in diameter. The shell also has hair-like projections. In the UK, the snail has *RDB* Rare status, being a mainly central European species on the north-western edge of its range. It is now found only on the South Downs and Hampshire Hangers and is believed to have become recently extinct in the North Downs. It seems to be a poor coloniser, according to survey data gathered in the neighbouring county of West Sussex by Dr Martin Willing. This may be because it spends much of its life on beech stems, where it grazes the epiphytic fungus, *Ascodichaena rugosa*. The survey in Hampshire revealed live specimens at four sites and empty shells at one other site. One of the colonies, on the Hampshire Downs near Winchester rather than in the Hangers, was a new discovery.

Although the Cheese snail is the least widespread of the four species within Britain, it is not the rarest. This is the Mountain bulin, *Ena montana*, a snail with an elongated shell which, like the Cheese snail, has a mainly central European distribution. Also, like the Cheese snail, it has *RDB* Rare status in the UK and is listed as a Species of Conservation Concern in the Hampshire Biodiversity Action Plan. Its UK populations are most concentrated in the Cotswold Hills, well to the north-west of Hampshire. Like the Cheese snail, it lives in old calcareous woodland, but is more often found in leaf litter and fallen wood than on standing stems. In the Hampshire survey, only one live specimen was found, but empty shells were found at three other sites.

In contrast, the Landwinkle or Round-mouthed snail *Pomatias elegans* is the most common of the species surveyed. Its range extends



throughout Western Europe and the Mediterranean area and it can be locally abundant on a fairly wide range of highly calcareous sites. It is mainly found in damp conditions near the ground and rarely climbs trees. Its shell, which has an operculum at the mouth, is less elongated than that of the Mountain bulin and has an elegant shape. Numerous records showed that it was thriving throughout the survey area.

The fourth of the species was the Lapidary snail *Helicogona lapicida*. Its shell is distinctively discus-shaped, with a pronounced keel. It is said to be rare on the Downs, although common on well drained sites within other calcareous areas such as the Mendips in Somerset and the Peak District in Derbyshire. Also, it appears to have died out in the London area, perhaps due to the effects of pollution on the lichens and algae on which it feeds. The survey showed it to be present within several 10 × 10 km grid squares, including one near West Meon, where it had not been previously recorded.

Crustacean conservation in Durham, north-east England

The Durham Wildlife Trust has initiated conservation initiatives for two Crustacea: a myrmecophilus woodlouse *Platyarthrus boffmannseggi*, and the native White-clawed crayfish *Austropotamobius pallipes*. *Platyarthrus boffmannseggi*, a blind, white woodlouse, which is only 4mm long, feeds on the faeces of its host ant species: *Formica fusca* in this instance. It apparently escapes predation by the ants by clinging impet-like to the substrate and also by exuding a defensive secretion if attacked. Its special adaptation to its host is illustrated by the fact that it is attracted to formic acid. The only location known in north-east England for this woodlouse is on land owned by Durham City Council. Its survival was being threatened there because conditions were becoming unfavourable for *F. fusca*. This ant likes to live under stones in the warm conditions of short grassland, but the habitat was being shaded due to colonisation by hawthorn scrub. The Trust, in partnership with the Council, has therefore removed the scrub so as to maintain the site for *Platyarthrus*.

As far as *A. pallipes* is concerned, no practical work has yet been done, as the current need is to see if there are any populations in ponds and rivers within the county. The Trust knows only of a colony in a pond on one of its own reserves, and suspects that the crayfish has disappeared from some of its former sites on the River Tees and its tributaries. As mentioned in earlier issues of *ICN*, this species has died out in many areas due to a fungal disease contracted from an American crayfish, which has been widely released for commercial reasons. Such



releases are now illegal, but a great deal of harm has already been done. The Trust would welcome any news of recent sighting, of the native crayfish in County Durham.

Update on the Sea Empress disaster (1996) in Pembrokeshire West Wales

ICN 27 carried a summary of some survey data of marine invertebrates following the Sea Empress oil spill, as reported in *Sanctuary*, the conservation magazine of the UK Ministry of Defence. The report dealt with marine Crustacea and molluscs, which had begun to recover by November 1997. The latest issue of *Sanctuary* provides an update based on surveys in 2000. The populations of limpets and barnacle were continuing to thrive at normal densities, and there was also very encouraging news of a species that was not surveyed in 1997; the strandline carabid beetle, *Nebria complanata*.

As mentioned in an earlier issue of *Sanctuary*, the Frainslake Bay area of the Castlemartin Range provides a much better habitat for *N. complanata* than many public bathing beaches, which are excessively tidied up by local authorities. It requires strandline debris, such as driftwood, for essential shelter. There were fears that the oil spill might have been very detrimental to the beetle population, but the good news is that it was found in record numbers (341) in September 2000.

Bumblebees on Defence lands in West Wales

In *ICN 33*, we mentioned a report in *Sanctuary*, the conservation magazine of the UK Ministry of Defence, about the Shrill carder bee *Bombus sylvarum* at the Castlemartin Range in Pembrokeshire, where there are large areas of grassland that are not subject to summer grazing. The report mentioned that this bee had been recorded in a survey funded by the Countryside Council for Wales (CCW) during 1999. As this bee has been declining greatly, a more detailed survey was done by members of the UK Bumblebee Working Group in 2000 with funding again from CCW and also from the Worldwide Fund for Nature.

The results of the new survey, which are reported in the 2001 issue of *Sanctuary*, were very encouraging. Ten bumblebee species were recorded at the Ranges, of which *B. sylvarum* was the third most frequent. It was also found at two farms approximately 3km to the north of the Ranges, where cattle grazing is light. The entire area over which the bee was found extends to almost 32 square kilometres.



making it the largest and least fragmented habitat area in Wales and probably anywhere in the UK. A nest of *B. sylvarum*, formed from an old mammal nest, was also found and caused some excitement, as nearly ten years had elapsed since the last such observation in the UK.

The surveyors found that foraging individuals of *B. sylvarum* mainly used Yellow rattle *Rhinanthus minor* and Bird's foot trefoil *Lotus corniculatus* as nectar sources in May and June. Later, they turned their attention more to Black knapweed *Centaurea nigra*, Red Bartsia *Odontites verna*, Red clover *Trifolium pratense* and Devil's-bit scabious *Succisa pratensis*, as these flowers became more abundant in the sward. It seems that, as most of these plant species have flowers with long corollae and abundant nectar, they are important for the survival of long-tongued bumblebees such as *B. sylvarum*. It is suggested that the serious decline in populations of these bees is due to a lack of these specialised nectar sources (especially Red clover) on present-day farmland. Another long-tongued species, the Brown-banded carder bee *Bombus humilis*, was also found at Castlemartin. Although it has BAP status, it is still fairly common along the southern coasts of England and Wales.

In view of the importance of the Castlemartin Ranges for *B. sylvarum*, appropriate management and monitoring will need to be maintained. A key factor seems to be the use of large parts of the area for winter grazing by cattle and sheep. The grazing is extensive, creating a mosaic of vegetation structure, and is not allowed to take place between late April and late September.

The Basil-thyme case-bearer moth *Coleophora tricolor*: a study in East Anglia

Like the story of the Shrill carder bee, this study is reported in *Sanctuary* magazine. There is also a detailed account in the entomological literature (G.M. Haggett, *Entomologist's Gazette*, 2000, **51**, 215-234). As with the Shrill carder bee, an avoidance of over-grazing seems to be beneficial. One big difference between the two stories is that, unlike the Shrill carder bee, this tiny moth has always been very rare since its discovery just over a hundred years ago. According to Gerry Haggett, whose data come from a survey that he did for the Ministry of Defence at the Stanton Training Area in Norfolk, the moth has never been found anywhere other than the Breckland of Norfolk and Suffolk and one site in Switzerland.

One of the factors that seems to make the moth vulnerable is its dependence on two foodplants, at different stages of its larval



development: the localised Basil-thyme *Acinos arvensis* and various grasses, of which the common Yorkshire fog *Holcus lanatus* is the main species. Basil-thyme has exacting requirements and its Breckland populations are found only on calcareous exposures, where the low fertility prevents it from being out-competed by potentially coarse vegetation. Indeed, Gerry Haggett points out that the other main foodplant, Yorkshire fog, is a coarse and invasive grass, which would overwhelm the Basil-thyme on a richer soil type.

Gerry Haggett's survey located two sites within the training area that supported the moth. These sites were ungrazed and it seems likely that grazing had been detrimental elsewhere. Gerry Haggett points to parallel evidence of this from other sites, including a Suffolk Wildlife Trust reserve. He suggests that the harm is done during March to early June and again in autumn, when the two foodplants respectively are sought by the sheep. Rabbit grazing could also be a problem. The difficulty is that some degree of grazing is needed to prevent scrub encroachment, which would destroy the open Breckland habitat. Also there is a risk that intensified training will cause harm, although the military use of the site has been beneficial so far, in preventing adverse changes in land use.

More on (over)-grazing: the Bright wave moth, *Idaea ochrata*

As grazing is a very important management tool, there is some value in looking at another example where it can harm invertebrates or their habitats if it is too intensive or allowed at critical times of year. Just such a case is reported in the April 2000 to March 2001 *Lepidoptera Conservation Bulletin*. It seems from survey work in 1999 and 2000 that the Bright wave is now confined to a single British locality, between Sandwich and Deal in the south-eastern English county of Kent. Previously known populations further north, in Essex and Suffolk, seem to have died out. However, the Kent populations were found to occur over an eight-kilometre length of the coast.

The habitat sites within the locality were found to contain recognisable sward, which included the moth's leguminous foodplants. This type of sward was well represented within the roughs of the linked golf courses in this area. The moth was, however, not found within parts of a nature reserve where a sward of similar composition is heavily grazed during the winter. Neither was it found on any other heavily grazed sites. It is suggested that such a regime may prevent the larvae from surviving the winter, which they normally do on foodplants near to the ground. In view of these findings, management plans have



been discussed with the site owners, who have been provided with an illustrated leaflet about the moth and its requirements.

The Black bog ant *Formica candida* in Hampshire

Ray North reported on this UK Biodiversity Action Plan priority species in the February 2001 issue of the newsletter of the Hampshire Network for Invertebrate Conservation. This ant inhabits mires and wet heathland, and its main strongholds are in wetter areas than the southern English county of Hampshire. It was thought to be declining in Hampshire and the neighbouring county of Dorset, but recent surveys in the New Forest have shown it to be present at many previously recorded locations and at several sites where no previous records had existed. Ray North believes that the new findings may be due to an improvement in survey techniques.

Although the Black bog ant is not as scarce in the New Forest as was thought, Ray North points out that it remains under threat from changes affecting its habitat. These include, scrub encroachment, land drainage and over-grazing by livestock (as with some of the other invertebrates featured in this issue of *ICN*). Although over-grazing can be detrimental, recent studies indicate that some grazing is necessary to keep the habitat open. Just how much grazing is needed should become more clear as a result of continuing studies funded by English Nature at Roydon Woods near Brockenhurst, where the Hampshire Wildlife Trust has a nature reserve. The research will also address the hydrological requirements of the ant. These are currently far from clear, as its nests occur in areas subject to prolonged flooding as well as in moderately dry peat.

BOOK REVIEW

The Ladybirds of Surrey by Roger D. Hawkins, Surrey Wildlife Trust, 2000, vi+136pp, ISBN 0 952606 55 0, hardback, £12.00.

In Britain there is an excellent tradition of publishing records and field notes of various plant and animal groups at a county level. One of the more active counties in this regard is Surrey in south-east England, which enjoys both a relatively rich flora and fauna, by British standards, and a high concentration of naturalists. Nearly all the British ladybirds, including one new to Britain and three others newly recorded in Surrey, occur in the county. This is just one of the reasons why this book deserves to be read by everyone with an interest in ladybirds and not just by people who have special associations with Surrey.



The book includes two major sections; an introduction and a series of accounts of individual species. There are also appendices, showing the literature references, a gazetteer of sites and a glossary. Finally, and very usefully, there are indexes of plant species, ladybird names (both scientific and English) and of ladybird food sources (mainly invertebrate prey taxa, but also mildews and plants). The introduction includes a wide range of information about ladybirds, including their life histories, their conservation and their value in pest control. It also includes information about the county of Surrey, such as its geology and climate, and explains the basis and scope of the survey.

The account of each species includes a distribution map, showing the 2×2 km tetrads in which the species has been recorded. The number of tetrads recorded for the species is stated in a summary, which also defines the habitat and quotes the county and national status of the species (e.g. common, local or notable). There follows an interesting account of the habits and the habitat of the species, which is of great help to anyone wishing to find it in the field. There are also lists of specific records at individual sites, with details of habitat and ladybird behaviour. For anyone concerned with conservation, there is much useful information on the changing status of each species within Surrey and on where and how to search for it in the field.

The accounts of individual species include some very useful hints for identification, which can be used in conjunction with a list of Identification Starters. There are also many excellent colour photographs, which show in natural pose the adults of all the 24 large British species and some of the 18 smaller ones. Larvae of some species are also shown. For some species, both dorsal and ventral views of adults are included. Also, variants are shown of the more polymorphic species, such as the Ten-spot and Two-spot ladybird. Additionally, there are photos showing various aspects of ladybird lifestyles and several showing other beetles that can be mistaken for ladybirds.

Roger Hawkins has done an excellent job, not only in compiling the technical information for this book, but also in creating a very readable and engaging text. His interest in the subject and his personal knowledge of wildlife in the field come across strongly. The book is further enlivened by occasional comments of a more personal nature, complimentary as far as the human inhabitants of the "London part" of the old county of Surrey are concerned, but much less so regarding the Department of Transport.



RESEARCH NOTES

Biological control of locusts and grasshoppers

Several years ago, research on biocontrol of locusts and grasshoppers was stimulated by increasing restrictions on the use of the hazardous pesticides. These chemicals gave good control because they were persistent, unlike the less harmful ones that were still available. A lack of persistence has also been a limitation with many biocontrol agents, as they often tend not to survive very well, even if they are initially successful. In 1995, M.B. Thomas and co-workers at Imperial College, England, found that a strain of the fungus *Metarhizium flavoviride* could give good control, by persisting long enough to infect new generations of the pest species (*Proc. Royal Soc., London, Series B, Biological Sciences*, 1995, **259**, 265-270). This strain was also fairly specific to locusts and grasshoppers, so that the risks to non-target invertebrates were lower than with a broad spectrum agent.

More recently, techniques for storing and applying *M. flavoviride* have been developed, so as to improve its suitability for use on commercial crops. The spores of the fungus have been stored in a dry state or in suspension in oil, but their viability has been rather short, especially when not refrigerated. At Reading University, England, S. Sanyang and co-workers have found that spore viability in oil can be considerably extended by adding the synthetic pyrethroid insecticide lambda-cyhalothrin to the mixture at 20 ppm (*International Journal of Pest Management*, 2000, **46**, 165-168). In another department at Reading, T.D. Hong and co-workers were able to extend the viability of spores by using a slow drying regime following culture on a rice-based medium (*Mycological Research*, 2000, **104**, 662-665).

Field experiments have shown that *M. flavoviride* can control locusts and grasshoppers well. For example, Zhang Zehua and co-workers have obtained mortality of up to 88% in pest grasshopper species, such as *Oedaleus decorus asiaticus* in Inner Mongolia (*Chinese Journal of Biological Control*, 2000, **16**, 49-52). However, high mortality built up only when the cadavers of the first generation of insects killed became infective to other individuals. Slow mortality may sometimes still create a need to use fast-acting insecticides on some kinds of crop (Lomer *et al.*, *Agricultural and Forest Entomology*, 1999, **1**, 71-88). Also, there may be cause for concern over the possible use of broader-spectrum biocontrol agents. If they persist after application, their adverse effects on non-target invertebrates could be just as serious as when chemicals are used.

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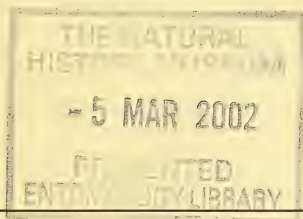
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INVERTEBRATE CONSERVATION NEWS



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EDITORIAL

It is "received wisdom", at least in industrialised Europe, that sites set aside for wildlife conservation must be actively managed. Any notion that wildlife can take care of itself is seen at best as naïve and at worst as plain ignorant, or indeed dangerous. And yet, there are those who may ask why human intervention is so vital in view of the fact that wildlife clearly existed in great diversity before our forefathers began to change the face of the living world.

Given that many of our plant and animal species require open habitats, the underlying justification for managing such habitats is undeniable. In countries where the climate is moist enough to support closed-canopy forest, this is the type of vegetation cover that will result from the unhindered growth of native woody plants. Also, in lowland areas, where natural bodies of standing water are rare or absent, artificial ones tend to silt up if they are not periodically dredged. Clearly, to establish a nature reserve (except in a high forest stand) and then to leave it unmanaged is to invite successional changes that will make conditions increasingly unsuitable for the current flora and fauna.

Although, in practice, objectives for wildlife conservation can generally be realised only through site management, there are dangers in applying management techniques prescriptively and in uncritical acceptance of the idea that management is fundamentally essential. If we are concerned about a particular species or range of species, our natural tendency is to want to maintain the special habitat features that they require (assuming that we know what they require). Such measures may be the only way of fulfilling a recovery programme for an endangered species. On the other hand, to manage a site for the benefit of some species could be very detrimental to others. At the very



least, it seems desirable to be aware that such problems may exist and to make some attempt to identify the damage that could be unintentionally done.

At a more fundamental level, it is not a bad thing to ask whether the management plan for a site makes sense in relation to the site's history and current circumstances. In his provocative book *The Follies of Conservation*, published in 1979, Arthur Thomas derided British conservationists who, in his view, were making false claims about the supposed ancient, semi-natural or even natural origin of plant communities that in reality owed their composition to human land use sometimes as recently as the nineteenth or early twentieth centuries. Essentially, he was arguing that conservationists had ascribed a false ecological identity to assemblages of plants and animals that just happened to exist because of the vagaries of a combination of climate, soils and past land-use.

It is salutary to consider whether the habitats that we so much admire may be of more recent or haphazard origin than some ecologists would like to think. This does not, however, mean that, without protection and management, they would persist or be regenerated through cyclic processes. Natural cycles took place in primeval times, when (as we now believe) grazing by large mammals maintained a savannah-like landscape, rather than the dense "wall to wall" forest that we used to think of. With the advent of agriculture, the need to let land lie fallow and to rotate crops continued to provide a form of cyclic management that still allowed many, though by no means all, native species to flourish. Thus, there was little need to set wildlife areas aside and to spend a lot of money on managing them in the way that Arthur Thomas criticised. Such a need has emerged due to today's very intensive agricultural practices, but it should perhaps be seen as a response to a problem rather than a fundamental necessity.

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NEWS, VIEWS AND GENERAL INFORMATION

The Biodiversity Monitoring Programme at RSPB Nature Reserves in 1999: from a report by James Cadbury, Matt Shardlow and Mark Gurney, Royal Society for the Protection of Birds (2001)

Dr. Peter G. Sutton, AES Habitat Conservation Officer, 94 Evesham Road, Rowley Fields, Leicester LE3 2BD.

1999 was the fourth year of the non-avian Biodiversity Monitoring Programme at RSPB reserves in East Anglia, and the third for the reserves in the UK as a whole. The report, which is the fourth of the programme, also includes some records for 1998 and earlier years, particularly of moths at Killiecrankie (Perthshire, central Scotland) and Ynys-hir (Ceredigion, west Wales).

Records were made at sixty-four reserves (four more than in 1998), of which there were forty-two in England, seven in Wales, thirteen in Scotland and two in Northern Ireland. Although much of the recording was done by staff and volunteers at reserves, outside specialists made a major and very important contribution, particularly regarding lower plants and invertebrates. The biodiversity recording at RSPB reserves has involved increasingly close links with JNCC and non-governmental organisations such as the British Mycological Society, The British Lichen Society, Plantlife, The Amateur Entomologists' Society, The British Dragonfly Society, Butterfly Conservation, the British Entomological and Natural History Society, the Herpetological Conservation Trust, the Bat Conservation Trust and the Vincent Wildlife Trust.

Some of the monitoring has been long-term and thus pre-dates the current programme. For example, the Heath fritillary *Mellicta athalia* has been monitored at Church Wood, Blean, Kent (S.E. England) since 1982. Also, the Northern brown argus *Aricia artaxerxes*, High brown fritillary *Argynnis adippe* and Pearl-bordered fritillary *Boloria euphrosyne* have been monitored at Leighton Moss, Lancashire (N.W. England) since 1979 and at Warton Crag, Lancashire since 1988. One of the advantages of choosing reserves for species-monitoring is that the habitat and management can be kept under surveillance at the same time.

The Biodiversity Recording Programme has highlighted the significance of RSPB reserves for many threatened and protected species, ranging from lichens and flowering plants to reptiles, amphibians and mammals. Of particular interest are records of



numerous rare and threatened invertebrates at the reserves, which include the spectacular and recently re-discovered staphylinid beetle "the Maid of Kent" *Emus birtus*, an important population of the globally threatened Southern blue damselfly *Coenagrion mercuriale* and an impressive range of butterflies and moths that are elsewhere in decline.

The Biodiversity Monitoring Programme at RSPB reserves is now co-ordinated by a small group of RSPB staff under the guidance of Matthew Shardlow (soon to take up the post of Director of Conservation at "Buglife" (The Invertebrate Conservation Trust) and Dr Graham Hirons (Head of Reserves Ecology). It has been given the name PROBE (Promotion and Enhancement of Biodiversity on Reserves) and has the following important tasks:

- To organise data collection and prescribe monitoring.
- To identify gaps in biodiversity knowledge at reserves and prioritise surveys.
- To train reserves staff so that they have a better understanding of the micro-habitats required by invertebrates.
- To ensure that the biodiversity of RSPB reserves is maintained and wherever possible nurtured.
- To promote the value of RSPB reserves for the conservation of biodiversity to membership, those making decisions affecting land management or conservation policy and the public.
- To ensure that RSPB reserves contribute positively to the conservation of UK and global biodiversity.

The Biodiversity Monitoring Programme has now run its first five-year cycle and is entering a review period, during which the list of target species will be revised and more detailed monitoring methodologies defined. Much of this work will be done by the RSPB Taxa Team. This is a team of RSPB staff who have been allocated time to oversee conservation work on specific taxonomic groups, or to develop the skills and knowledge in particular areas. Members include Maurice Waterhouse who leads on entomological work and Leigh Marshall who co-ordinates the work of the Lepidoptera team.

***Survey volunteers needed in West Sussex, UK***

A note from Peter May, local Conservation Area Rep. for the AES, 6 Aigburth Avenue, Aldwick, Bognor Regis, West Sussex PO21 3DA.

At a recent meeting of the Arun Biodiversity Forum I had the opportunity of meeting one of the wardens of a large National Trust estate. The estate, which is near Arundel, is mostly a mixture of farmland and woodland. The warden expressed an interest in instigating surveys of the invertebrate fauna of some areas of the estate, so that any conservation can be more effectively undertaken. Anyone interested in undertaking such surveys should contact me at the above address.

(Ed. - Dr Keith Alexander, Head of the National Trust's Biological Survey Team comments that there are provisions whereby volunteer recorders can become officially recognised as such by the Trust. Such recognition has real benefits, which might include the provision of travel expenses if agreed in advance. In any case, the recorders would be covered by NT insurance, provided that the recording is co-ordinated with NT staff on the ground.)

Great Britain: Review of Wildlife and Countryside Act (1981)

The fourth quinquennial review of Schedules 5 and 8 of the Act has been prepared by Dr Ian McLean of the Joint Nature Conservation Committee. Essentially, the review provides an opportunity to propose changes to the legal status of plant or animal (other than bird) species that are already on the schedules or that are listed as endangered. In past reviews, there has been a tendency to add more species to the schedules but the removal of species can also be considered.

Following consultations with other government agencies, JNCC circulated copies of the consultation paper to all the main invertebrate organisations in Britain. The paper contains some long lists of species, but Ian McLean makes it clear in a covering letter that a species "should only be nominated if there is clear benefit to be gained from placing it on a Schedule." The criteria for scheduling are as follows:

- there is an international obligation to protect species in this way
- an animal or plant is in danger of extinction in Great Britain, or is likely to become so endangered unless conservation measures are taken, and legal protection is likely to improve its chances of survival.



Scheduling is considered to be particularly appropriate where there is a need to

- protect an animal or plant species from direct human pressure such as persecution, collection or trade
- protect elements of habitat essential for the survival of an endangered species.

Strict application of these criteria is likely to be a safeguard against the unnecessary scheduling of species, despite the fact that some people would wish to press for "reverse listing", which would criminalise the collection of any species that was not listed as exempt. In this regard the UK authorities are enlightened compared with their counterparts in various other countries, where long lists of species have been "protected" from collecting, without the application of rigorous criteria. On the other hand, it can be argued that some of the species listed in Schedule 5 are no more worthy of legal protection than a great many others that are listed as endangered but not currently scheduled. It would therefore be useful to give serious consideration to the removal of species that, by today's criteria might not be added to the list.

It is worth noting that, according to the consultation paper, the JNCC did not regard any of the UK 'Biodiversity Action Plan Priority Species' that are not already scheduled to be suitable candidates for scheduling. There are, however, proposals from other government agencies that several invertebrates on the BAP priority list should nevertheless be considered for full scheduling. These are the hoverflies *Blera fallax* and *Hammerschmidtia ferruginea* and also the Stag beetle *Lucanus cervus*, which is already protected in respect of trading.

Unfortunately, this issue of *ICN* is not likely to appear until after the deadline for submitting proposals to JNCC (19th February 2002). It may however, be of some interest to visit the JNCC website (www.jncc.gov.uk) from which it is possible to download all the relevant information, including the proforma for submitting proposals. The matter will be considered by the AES Conservation Committee, the Invertebrate Conservation Trust and other organisations in conjunction with Invertebrate Link.

Amateur Entomologists' Society Area Representatives Scheme

LIST OF AES AREA REPRESENTATIVES

This list supersedes the one published in *ICN* 36, which was regrettably rather out of date: in particular please note that, of the people listed



earlier, two are no longer representatives; Martin Harvey (Berkshire) and Dr Paul Griffiths (Cheshire). We thank them very much for all their work in recent years. Please also note below the current addresses of the following:

- (1) The Co-ordinator (AES Habitat conservation Officer), Dr Peter Sutton
- (2) Three recently appointed reps: Peter May (West Sussex), Jenni Johnstone (Orkney & Shetland) and Brian Mitchell (Warwickshire)

CO-ORDINATOR

Dr Peter G. Sutton (AES Habitat conservation Officer) 94 Evesham Road
Rowley Fields Leicester LE3 2BD.

Tel: 07773 156586 E-mail: petersutton@freeuk.com

ENGLAND

Essex (north-east) (see also Hertfordshire & Essex west)

Nigel Cuming / Jerry Bowdrey, c/o 33 Holly Road, Stanway, Colchester, Essex
CO3 5QL. Tel: 01206 330019

Activities: various conservation projects, surveying MoD land, joint project
with RSPB at Old Hall Marsh (5 year project).

Buckinghamshire

Dr Roger Kemp, Kemp's Farm, Chapel Road, Ford, Aylesbury, Buckinghamshire
HP17 8XG.

Cambridgeshire

Robert Partridge, 66 Cornfield Road, Mepal, Ely, Cambridgeshire CB6 2AP.

Cleveland

Ian Mascal, 18 Alberta House, Highfield Road, Middlesbrough, Cleveland
TS4 2NP.

Hertfordshire (east) / Essex (west)

Charles Watson, 18 Thorley Park Road, Bishop's Stortford, Hertfordshire
CM23 3NQ. Tel: 01279 505309

Activities: conservation projects & member of Herts and Essex moth groups.

Kent

Tony Steele, 57 Westfield Road, Barnehurst, Kent DA7 6LR.\

Lancashire

Sharon Flint, Lancashire, c/o Department of Environmental and
Geographical Sciences, John Dalton Building, Chester Street, Manchester M1
5GD. Tel. 01524 812113; E-mail: s.flint@mmu.ac.uk (home:
sharon@winkywoo.demon.co.uk)

Activities: recording Ephemeroptera, Plecoptera and Trichoptera from an
upland valley in the Peak District.

*Somerset*

Roger Sutton, 16 Ashford Road, Wellington, Somerset TA21 8QF.

Activities: conservation of butterflies, management, reports and research.

Sussex (west)

Peter May, 6 Aigburth Avenue, Aldwick, Bognor Regis, West Sussex PO2 3DA. Tel: 01243 265537 E-mail: petermay@care4free.net

Activities: entomological surveying, monitoring county conservation issues.

Suffolk

Rob Parker, 66 Cornfield Road, Bury St Edmunds, Suffolk IP33 3BN.

Activities: many conservation projects

Warwickshire

Brian Mitchell, 127 Watling Street, Grendon (Near Atherstone) Warwickshire CV9 2PH.

Worcestershire

Geoff Trevis, 14 Old Coach Road, Droitwich Spa, Worcestershire WR9 8BE
Tel: 01905 774952 E-mail: geoff.trevis@btinternet.com

Activities: a range of initiatives to increase interest in invertebrates and their conservation, member of Worcs. WT and on advisory group for Worcs. BRC.

Yorkshire

Dave Hemmingway, Yorkshire (west), 13 Ashdene Garth, Crofton Wakefield, WEST Yorkshire WF4 1PH. Tel: 01924 864013

SCOTLAND*Central*

Craig Macadam, 109 Johnstone Avenue, Stenhousemuir, Larbert, FK5 4JY
Tel: 01324 883914 E-mail: craigmacadam@tesco.net

Activities: running open days and teaching conservation issues, assisting wildlife trusts, general entomological advice.

North-east, Orkney and Shetland

Jenni Johnstone, 31 Roslin Street, Aberdeen AB24 5PE. E-mail: bugclub@altavista.co.uk

Activities: Education Officer for the AES Bug Club in Scotland, involved in various local conservation projects.

WALES*South*

Neil Jones, Flat 3, 53 Bryn Road, Brynmill, Swansea SA2 0AP. E-mail: Neil@nwjones.demon.co.uk

Activities: developing wildlife website, conservation projects.

IRELAND

Tim Lavery, Farnes, Castlemaine, County Kerry, Eire.



SITES AND SPECIES OF INTEREST

The White abalone Haliotis sorenseni; an American tale of isolation

The Fall 2001 issue of *Wings*, published by The Xerces Society, includes an article by Brendan Cummings on this endangered marine gastropod mollusc, which lives off the coast of southern Californian (USA) and northern Baja California (Mexico). It is quite a large species, usually reaching 12 to 20 cm, but occasionally up to 25 cm in length, which attaches itself to rocks at sub-tidal depths of twenty to sixty metres.

The White abalone used to occur in abundance and was commercially exploited by divers as a seafood delicacy, very intensively so during the late 1960s and early 1970s. Exploitation stopped when the population crashed in the 1970s, by which time there were hardly any adults to be found. It was some years earlier, in 1966, that the species had last been observed to reproduce. As it has an estimated lifespan of about thirty-five to forty years, the individuals that hatched around 1966 were probably the same ones that make up the present-day population. Not only are these adults now old; there is some premature mortality due to injury, as the slightest wound has fatal results for this species.

The plight of the remaining males and females of *H. sorenseni* seems to be an interesting but sad example of isolation. For many terrestrial invertebrates, isolation is a problem of too much distance between small colonies, which are separated by land devoid of suitable habitat. Reproduction occurs within the colonies but the lack of dispersal between them means that there is unlikely to be any re-establishment after a chance local extinction. The problem for *H. sorenseni*, and probably for other endangered marine species, is somewhat different; reproduction depends on contact between eggs and sperm which are released into the water. The current density of individuals, at about one per hectare, appears to be too low to allow this process to spawn successfully.

In view of the precarious status of *H. sorenseni*, it has recently become the first marine invertebrate to be listed as "endangered" under the USA's federal Endangered Species Act. Such listing places an affirmative mandate on all relevant federal agencies to take actions for the conservation and recovery of the species concerned. As a result, spawning of *H. sorenseni* in captivity has been successfully attempted as a first step towards a captive breeding programme.



Although *H. sorenseni* may be rescued from the brink of extinction Brendan Cummings points out that there are other (currently unlisted) marine invertebrates in American waters that have been found to be in danger due to over-exploitation or habitat degradation. These include the Black abalone *H. cracherodi*, which is being affected by a disease as well as having been over-fished. It seems all too likely that the plight of these species is known only because they happen to have been studied. In many parts of the world, no such studies are likely to take place and we must therefore suspect that the known cases represent the tip of an iceberg as far as other commercially exploitable marine invertebrates are concerned.

Small Ranunculus moth on brownfield sites in South Wales

The importance of brownfield sites for wildlife continues to be a growing theme in the magazines of the UK's wildlife trusts. Sadly though, the stance of some of our leading politicians and journalists still seems to suggest that they must be living on a different planet. The latest gem of information comes from the Winter 2001/2002 issue of the magazine of the South Wales Wildlife Trusts. In an article about the need to conserve post-industrial habitats Julian Branscombe of the Gwent Wildlife Trust cites the case of the Small ranunculus moth *Hecatera dysodea*, which had reportedly been extinct in the UK for more than sixty years.

In 1999 *H. dysodea* was found in Newport (Gwent) and there were further records in the summer of 2001, which included sightings not only of adults but also of caterpillars feeding on Prickly lettuce *Lactuca serriola* in several brownfield localities. The moth was widespread and locally common in south-eastern England and East Anglia until a sudden unexplained and severe decline before the First World War and its eventual total disappearance from the UK around 1939.

Although it is interesting to see the re-appearance of a species that has been recorded as nationally extinct, it is debatable whether this is a flagship case for brownfield conservation. The trouble is that, in its heyday, this species was found largely on waste ground and gardens and was even said to be a pest of lettuce. As it was, in effect, a brownfield insect a hundred years and more ago, we can hardly claim that it is a refugee from some fragile habitat that has been destroyed by modern farming practices. Indeed, it seems possible that it may have been re-imported, perhaps with overseas produce. As long as



does not become a pest again, we can at least value it more than the Gypsy moth *Lymantria dispar*, which is a "quarantine" organism under UK plant health controls, despite having once been native (see ICN 28).

RESEARCH NOTES

Problems associated with the biological control of locusts and grasshoppers

Dr Peter G. Sutton, AES Habitat Conservation Officer, 94 Evesham Road, Rowley Fields, Leicester LE3 2BD.

In the October 2001 issue of ICN (36: 13) the control of pest species of locust and grasshopper was discussed with regard to the successful development of the fungus *Metarhizium flavoviride* as a biocontrol agent. This is an issue that deserves to be viewed within the wider context of pest management and the agrochemical industry.

There are 12,000 species of locust and grasshopper worldwide. Roughly 500 of these are responsible for agricultural damage, including about twenty very serious crop pests. These species can cause significant crop losses (e.g. 368,000 tonnes of cereals lost in the African Sahel in 1974), but their control plays a relatively minor role in the activities of the agrochemical industry. This may reflect the fact that outbreaks and hence the demand for insecticides are sporadic. When outbreaks occur, however, they can lead to very high costs for insecticide applications (e.g. over US\$300 million for the treatment of 30 million hectares in the 1987-88 desert locust *Schistocerca gregaria* outbreak in Africa).

The monitoring of populations of pest species could help to predict outbreaks, thus allowing control to be exercised at an early stage before great damage and high costs are incurred. For the countries affected, however, monitoring has tended to be unsustainable or too expensive, so that outbreaks are still allowed to develop until desperate measures are brought into action, involving the application of massive amounts of insecticide. This has severe ecological consequences, as populations of many "non-target" species, including reptiles, birds and mammals, are damaged, often beyond recovery.

The environmental damage caused by insecticidal control of locusts and grasshoppers can be particularly serious because some of the most effective chemicals are highly persistent and toxic to many other forms of life. The discovery of these problems has led to restrictions on the



use of some chemicals and the banning of others. These measures have stimulated research to find a new range of pesticides with good acaricide activity, but without toxic effects on the environment. As a result, there are now products with improved pest-specificity, low toxicity to vertebrates and reduced persistence. The agrochemical industry has been keen to extol the virtues of these chemicals. To quote a statement by one representative of the industry: "matters such as mammalian toxicity are now a small issue because of the specificity of chemicals".

Although the development of safer pesticides has been commendable, these products cause massive mortality of non-target invertebrates. This is of great concern in itself and it has serious indirect effects on ecosystems. These effects are particularly severe for some of the vertebrates that the products are meant not to harm. It is, for example, worth reviewing the effects of one particular spraying regime on savannah in Madagascar. Six months after spraying, the population of termites, (the dominant "grazers" on savannah) had decreased by 50%, with 8% of colonies lost, and mortality was continuing due to residual contamination of grass. The termite-dependent invertebrate population crashed and the reptile population decreased by 70%. An insectivorous mammal, the Tenrec, was lost from the affected area completely. Clearly, the effects of pesticide spraying can be devastating not only to susceptible non-target species, but also to other species that are indirectly affected.

Another approach to the replacement of the older and less environmentally acceptable chemicals has been the development of alternative products. These have included fungus-based biopesticides (e.g. *Metarhizium* spp. and other fungal entomopathogens), botanical insecticides (e.g. extracts from the roots of *Mucuna pruriens* and *Glinis lotoides*) and insect growth regulators such as diflubenzuron, an effective and now routinely used "barrier" treatment against migrating bands of locusts (the non-flying larval stages of grasshoppers and locusts).

One of the most successful discoveries was *Metarhizium*, which has been hailed as a "wonder fungus" for the treatment of acridian pest species. There are many isolates (certainly over 35) of *Metarhizium* spp. (*Metarhizium flavoviride*, *M. anisopliae*, *M. anisopliae* var. *acridium*), and the most virulent of these can lead to insect mortality within the space of six days. *Metarhizium*-based products are extremely effective at controlling and stabilising pest populations but they nevertheless have their problems. The most significant problem is that of non-specificity, i.e. the ability of *Metarhizium* spp. to infect non-target organisms. These include certain Diptera, non-target



Orthoptera and, according to current research, perhaps also termites, some other insects and certain fish. For this reason, the use of *Metarhizium*-based products has already been halted in one environmentally sensitive area in the US. Pest control managers must ensure that the consequences of using highly virulent strains of *Metarhizium* are comprehensively evaluated in every case.

That said, *Metarhizium*-based products are in current use; they are highly effective and generally very species-specific biocontrol agents. Thus they certainly appear to be the lesser of two evils when compared with the alternative of conventional chemical methods. As mentioned in *ICN 36*, methods to produce spores with long-term viability have been developed, and the use of oil-based formulations ensure that even populations living in desert conditions can be effectively targeted.

It is hoped that, with greater environmental awareness and increased pressure to protect areas of conservation importance, the use of an effective and environmentally acceptable biocontrol agent, and a concerted drive to develop sustainable pest management programmes, that the extensive environmental damage caused by locust control programmes may become a thing of the past.

Sources:

- Proceedings of the International Conference on Orthoptera (Montpellier, France August 19-22, 2001).
- Items in: the newsletter of the Orthopterist's Society *Metalepte*, Special Meeting Issue, August 2001.

FUTURE MEETINGS

Hampshire & Isle of Wight Wildlife Trust events

- Thursday 18th April: (Romsey District) Indoor talk at 7.30pm by Martin Harvey on invertebrate conservation, following the District a.g.m., Crossfield Hall Annex, Romsey; contact Theo Jarman (01794 514825) Admission £1.50 for the talk.
- Friday 3rd May: (repeated 8pm Sat. 15th June and 8 p.m. Fri. 19th July): Moth watch (trapping and identification workshop) at 7pm: Swanwick Study Centre, near Burseldon; contact Tara Puttock (023 8068 8908)
- Thursday 30th May: "Cricket on the Downs" (Isle of Wight District) Leader Chris Archbold; meet 10am at lay-by near Arreton Cross (SZ 531 866); contact Wight Wildlife (01983 533180). Donations requested.

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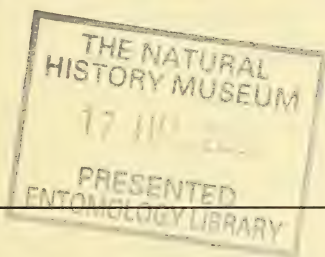
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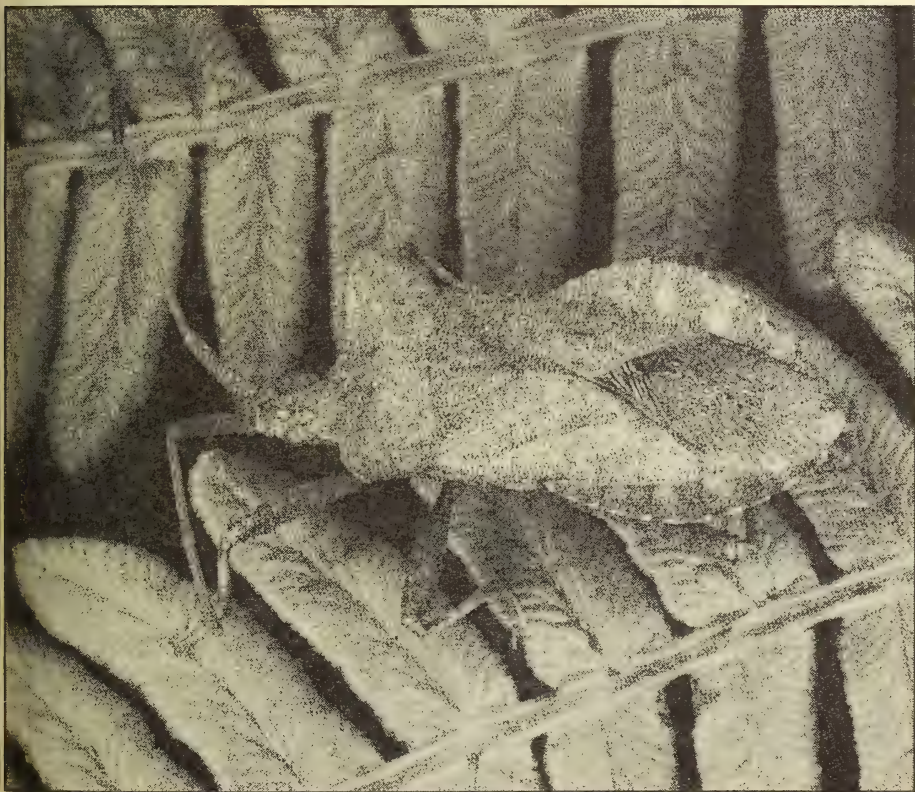
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Invertebrate Conservation News



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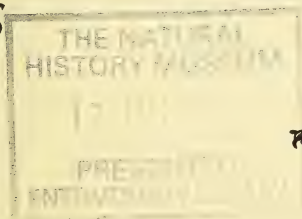
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INVERTEBRATE CONSERVATION NEWS



No. 38, June 2002

EDITORIAL

At the time of writing, UK naturalists are still awaiting the outcome of the latest quinquennial review of the Wildlife and Countryside Act, which might involve the addition of some invertebrate species to the protected list. Meanwhile, there has been a well publicised case involving two lepidopterists who were approached on the Hebridean Isle of Mull by police officers on the lookout for potential raiders of eagles' nests. They were allowed to go about their business after they explained that they were looking for moths, not birds, but they were later apprehended by police on the Scottish mainland when visiting the last known UK site for the protected New Forest burnet *Zygaena viciae*. Police investigations revealed no illicit specimens of *Z. viciae*, but did reveal immature stages of the Slender Scotch burnet *Z. loti* in large numbers. In the UK, *Z. loti* is now found only on the islands of Mull and Ulva but has not been previously regarded as requiring legal protection.

Even if, as currently seems likely, this particular case has not involved a criminal offence, it is likely to have repercussions. At the very least, our time will be wasted by the distraction of attending to anti-collecting law, which is of very much less importance than the protection and management of invertebrate habitats. We must, however, be sensitive to the views of people who work very hard to conserve particular sites and who understandably feel let down if the law appears not to protect the fruits of their labour from unscrupulous collectors. The Mull case may strengthen their view that no-one should be allowed to collect any rare species, at least in large numbers, without authority. Some people, especially those who do not come from an invertebrate background, might even try to revive the argument for reverse-listing, which would criminalise the collection or possession of all species, except those listed as not protected.



Perhaps the police already have a tendency to doubt the innocence of anyone collecting or even visiting an area where one or more protected species are known to occur. The Mull case seems likely to throw yet more suspicion on naturalists who have no intention to infringe either the law or the voluntary code published by Invertebrate Link (see *News, Views and Information*). The collection of a rare species in large numbers appears to represent a flagrant disregard for the Code and therefore adds fuel to the argument that voluntary measures are not effective enough. A counter-argument is that unscrupulous collectors who violate the Code comprise only a small minority. Unfortunately, however, the current case seems to blur the distinction that many of us would like to draw between the "goodies" and the "baddies". This is because one of the men under investigation reportedly had credentials with conservation bodies.

As far as the field biologist is concerned, it is disconcerting to feel that his or her harmless and legal activities may be viewed with suspicion not only by ill-informed "anti-collectors", but also by the long arm of the law. The societies to which he or she may belong are also placed under a burden by the law. In the UK, societies that hold exhibitions or that facilitate the trade or exchange of specimens need to be on the look-out for protected species. Some effort and organisation are required merely to keep up-to-date lists of species covered by national and international law. It is even more onerous to deal correctly and fairly with complex cases involving exemptions and licensing which rightly exist under the law.

We shall have to wait and see whether the current case influences either the provisions or the interpretation of the law. Any move toward more controls may be disappointing for people who need to collect specimens for research or personal study. Their freedom to do so need not, however, be directly eroded if the target is trading, rather than collecting or possession. There are already over 20 species of UK butterfly and a few other invertebrates, such as the Stag beetle *Lucanus cervus*, for which legal protection applies to trading only. Many of us would probably be reasonably content in principle to see a judicious and modest lengthening of the list of species thus protected. On the other hand, no law is a good law if it inhibits or casts suspicion on *bona fide* activities.





NEWS, VIEWS AND GENERAL INFORMATION

New edition of British code for collecting

Field entomologists in the UK have long supported the code for collecting that was published over thirty years ago by the "Joint Committee for the Conservation of British Insects" (now Invertebrate Link). The code, which was partially revised in 1987, has now been thoroughly updated. It thus takes account of developments in conservation and is applicable to all terrestrial and freshwater invertebrates; not just insects. The code, of necessity, defines certain activities that should be avoided or restricted but it equally emphasises the need to collect invertebrates in order to gain valuable information, much of which can aid conservation. The code is being reproduced in the *British Journal of Entomology and Natural History* (Vol. 15, 2002) and will also be separately published in print and on various websites. Additionally a "pocket" summary of the code is to be published free of charge by the Forestry Commission.

Royal Entomological Society: new Insect Conservation Committee

In addition to its Insect Conservation Special Interest Group, this premier UK society has set up a new committee with the following aims.

- To consider policies relating to the conservation of insects, to formulate draft Society policies, and to advise the President and Council accordingly.
- To act as a source of information and advice on insect conservation matters for the President and Council and, where appropriate, provide a response to external enquiries.
- To liaise with other organisations and committees with an interest in insect conservation.

At the time of writing, the membership of the committee was being formulated, with a view to including individuals and representatives of organisations with an active role in insect conservation, whether as research workers, managers or policy makers. The chairman is Dr Alan Stewart. The Special Interest Group will continue to act as a forum for the dissemination and discussion of results from studies on insect conservation. It will also organise meetings about once a year, to include posters, sessions and talks. One such event took place on 5th December 2001.



Educational slide packs

As some of our readers may know, there are now two educational packs available from the AES, each of 48 slides, with accompanying text by Dr Roger Key. The first pack, which proved very popular and soon had to be re-printed after selling out, shows superb photos of species and habitats from grassland, heathland, woodland and wetland. Through a further collaboration with English Nature, we have produced a new and equally impressive slide pack covering four additional habitat types: upland, farmland, brownfield and coastal.

As the text summarises the ecological significance of each individual slide, the packs are an excellent aid to anyone who wants to give slide shows and courses on a range of invertebrate topics, especially those relating to conservation. For the less vociferous, they are a useful resource for private study and can be used in conjunction with the AES book *Habitat Conservation for Insects* (which is now out-of-print but now being revised from a second edition).

The prices for the packs are as follows (please enquire for overseas mailings):

Grassland, heathland, wetland and woodland

£35 incl. packing & postage

Upland, farmland, brownfield and coastal

£37 incl. packing & postage

(concessionary rates are available for AES area reps.)

Please make cheques payable to the Amateur Entomologists' Society and send orders to: AES Slide Pack, PO Box 8774, London SW7 5ZG.

Species Status Assessment Project in Great Britain

This project is run by Joint Nature Conservation Committee (JNCC) in order "to focus conservation effort where it is most needed to conserve biodiversity in Great Britain". It involves assigning species to appropriate categories, depending on the degree of threat to which they are known to be exposed. All taxa are covered but those assigned to IUCN categories "least concern", "data deficient" and "not evaluated" will receive no further attention other than to be labelled in the Species Dictionary of the National Biodiversity Network. The names of all remaining species will be submitted for listing as "*Species of Conservation Concern*" (SoCC).



The SoCC list already exists to the extent that it encompasses all the Red Data and other categories that have been applied in the past, but the current project involves a re-assessment of taxa to an agreed standard. In this context, the JNCC has provided definitions of the currently used categories. Some of the older categories, such as "*rare*" have been superseded, although such terms are of course still used loosely. The main hierarchy of categories fall under the general heading of "*Red Lists*" and are as follows: "*extinct*" (or the somewhat different "*extinct in the wild*") > "*critically endangered*" > "*endangered*" > "*vulnerable*". There is also a separate category under SoCC known as "*near threatened*". The remaining groupings overlap with the Red List categories and have a legal or administrative basis, rather than forming any hierarchy of threat categories. They are as follows: "*Biodiversity Action Plan (BAP) Priority Species*", "*international responsibility*" (e.g. endemics) and "*legislation*"

Although the project seeks to identify relevant data sources, there is a lack of information about a great many species. There seems a danger, therefore, that some species could be excluded from Red List categories just because they have not been sufficiently studied. This could in turn lead to a misdirection of conservation effort. However, one of the principles behind the project is that the assessment of conservation status should be separated from the process of deciding priorities for action.

There may also be a more fundamental problem in assuming that the categorisation of species is a good basis for deciding how best to conserve biodiversity. Undeniably, we need to know which species are most in danger of global, national or regional extinction. On the other hand, however, we can perhaps be too easily tempted to lavish attention on species at the edge of their geographic ranges, where their populations may contain only a small proportion of their intra-specific diversity. Equally, we may be neglecting the biodiversity that exists within relatively common species. Such species may occupy many dots on distribution maps, but the dots may conceal serious declines in abundance and in the numbers of individual colonies. Through the decline and isolation of populations, intra-specific diversity could be seriously reduced long before a species declines enough to qualify for listing.

Butterfly Conservation expands in Wales

Three posts have been established by Butterfly Conservation, in partnership with the Countryside Council for Wales. The Volunteer Development Officer, Nichola Davies, will remain in post and will be



joined at a new office in Swansea by Russell Hobson (Conservation Officer for Wales) and Charlotte Sharp (Administration Assistant). In addition to the management of two reserves in Wales, the team will be involved in projects on some BAP Priority species. These include the Silver-studded blue butterfly *Plebejus argus* and six moths; Double line *Mythimna turca*, Buttoned snout *Hyphenia rostralis*, Orange upperwing *Jodia croceago*, Narrow-bordered bee hawkmoth *Hemaris tityus*, Waved carpet *Hydrelia sylvata* and Argent & Sable *Rheumaptera hastata hastata*. The Wales office is at: 10 Calvert Terrace, Swansea, Wales SA1 5AR (tel. 01792 642972). There is also an office at Bangor: 3 Queen's Terrace, Pentir, Bangor LL57 4UU (tel. 01248 372298).

Invertebrate Conservation Trust sets up its office

The Invertebrate Conservation Trust, the first UK-based organisation to be set up expressly for the conservation of invertebrates in general, has established an office in Peterborough and has appointed two full-time members of staff. Matt Shardlow is the Director of Conservation and Alex Ramsay is the Biodiversity Projects Manager. The office address of the trust is: c/o PECT, High Street, Fletton, Peterborough PE2 8DT.



SITES AND SPECIES OF INTEREST

Heath tiger beetle survey in southern England

According to *Biodiversity News* No. 19, studies of the Heath tiger beetle *Cicindela hybrida* are to be included in the RSPB's Dorset Heathland project. This beetle, although common in continental Europe and formerly widespread in the heathlands of southern and eastern England, now seems to be confined in its UK distribution to a few localities in Dorset and one in Surrey. Following the discovery of three previously unrecorded colonies on military training sites in Dorset, a study is being undertaken by Project staff. The status and habitat requirements of the beetle at the known sites will be determined and conservation advice will be given to the Ministry of Defence and to other landowners and managers. Funding for this survey is being provided under English Nature's Scarce Ground Beetle Project. Further information on the EN project can be obtained from: Dave Boyce, 1 Rosemary Lane, Dulverton, Somerset TA22 9DP (tel. 01398 32 3188 e-mail david.boyce@freenet.co.uk



Marsh fritillary declines in England

The results of a Butterfly Conservation survey of the legally protected Marsh fritillary butterfly *Euphydryas aurinia* in England are reported in the society's *Lepidoptera Conservation Bulletin* (No. 3). The survey, in 1999 and 2000, included 250 sites, but it found only 108 populations, many of them small. A comparison with 1990 data indicates that the data represent a much steeper decline than had already occurred between 1970 and 1990. The reasons for the decline were judged to be the deterioration of habitat due either to overgrazing or undergrazing. However, a PhD project undertaken by Caroline Bulman at Leeds University has provided evidence that the underlying problem is that many of the sites supporting the butterfly are too small and isolated to allow migration between colonies. This is essential for the maintenance of a "metapopulation", in which migration allows a dynamic interplay between colony establishment and chance local extinction. Such a system seems able to operate on Salisbury Plain (southern England), which is said to be the largest unbroken expanse of chalk grassland in Europe.

If the small size or isolation of habitats prevent normal population dynamics, we should hardly be surprised if the species concerned goes into decline. The Marsh fritillary seems to be particularly susceptible to such problems, but the principle is a general one. Perhaps, through fine-tuning the management on particular sites (even to the point of "gardening"), a few favoured species can be maintained almost indefinitely, but we have to ask whether this is the kind of conservation that we want. With increasing emphasis on agri-environment schemes, we could instead regain a landscape in which broad-brush management, compatible with economic land-use, ensures the maintenance of biodiversity.

Bad news about White-clawed crayfish in Britain

As mentioned in *ICN* 26 and 30, rivers and streams in various British counties are being surveyed for the native White-clawed crayfish (*Austropotamobius pallipes*). The aim is to find how many watercourses still support populations following the disastrous effects of habitat degradation and of the fungal disease, crayfish plague. The fungus that causes this disease was introduced together with stocks of the North American Signal crayfish (*Pascifasticus leniusculus*). A guide on the disease is available in England and Wales from the Environment Agency, Rivers House, East Quay, Bridgewater, Somerset (Tel. 01645 333111).



Two recent surveys have produced little evidence of the survival of the *A. pallipes* in stretches of water where it was thought to occur. According to information provided by Halcrow Consultants Ltd., a survey on the River Itchen in Hampshire, southern England, has given particularly disappointing results. The Itchen is a chalk stream with good habitat, but there seem to have been no authenticated reports of the crayfish on some stretches of the river in the last ten years. Some crayfish burrow systems have been found, notably near Winchester College, but these may be of relict origin. A total of 400 locations on one stretch of the river (Winnal to Abbots Worthy) were surveyed but no specimens of *A. pallipes* were seen. Efforts are now being diverted to other stretches (for example near Ovington) where there have been possible sightings within the last eight years.

In South Wales, a comprehensive survey of the Brecon & Monmouthshire Canal was undertaken with funding from the Countryside Council for Wales, Cardiff University and British Waterways. Of 49 stations sampled, only one produced records; at this site there were ten individuals associated with a spillway between an overflow tank and the River Usk.

Fisher's estuarine moth: survey in Essex

Fisher's estuarine moth *Gortyna borelii*, which feeds on hog's fennel *Peucedanum officinale*, is a mainly Mediterranean-Asiatic species which is extremely local in western Europe and has been recorded only at six localities in the UK, all of them in the Hamford Water Estuary, Essex. It was given full legal protection five years ago; amid some controversy, as the main threat to it seemed not to be collecting, but the mowing of the sea walls which support some of the populations of the larval foodplant Hog's fennel *Peucedanum officinale*. Interestingly, the collecting of the larvae was indirectly illegal anyway, as it involved removal of the foodplant which is protected under the Wildlife and Countryside Act.

Recent studies, reported in Butterfly Conservation's *Lepidoptera Conservation Bulletin* (No. 3) seem to vindicate the view of entomologists who argued that inappropriate management, rather than collecting, should have been targeted. In the study, a comparison was made between three regimes: (1) mowing at the end of August (as currently practised annually for the management of the sea walls); (2) mowing at the beginning of November and (3) not mowing at all. Preliminary results indicate that both mowing regimes appeared to be detrimental to the moth.



Another interesting aspect of the studies is the observation of oviposition and larval behaviour, which help to identify the moth's habitat requirements. It is reported that, both in 2000 and 2001, 75% of oviposition took place either on Sea couch grass *Elytrigia atherica* or on Common couch *E. repens*. The hatchling larva then has to make its way to a plant of *P. officinale*. The minimum distance to be traversed is usually no more than 30 cm, although occasionally up to 1 m. It was found, however that larvae may move up to 2.5 m in search of a foodplant. A high abundance of long, coarse grasses, especially *Elytrigia* spp., together with a relatively sparse coverage of the foodplant, seemed to favour the moth. As such areas were generally found close to sea level, the fear is that they could become increasingly submerged due to the effects of global warming.

Grazing regimes may harm Lunar Yellow Underwing and other moths

The Lunar Yellow Underwing *Noctua orbona* is being surveyed in the Brecks of Norfolk and Suffolk (eastern England) by Gerry Haggett. As reported in Butterfly Conservation's *Lepidoptera Conservation Bulletin* (No. 3). In 2000 and 2001 he found some evidence that heavily sheep-grazed areas are unsuitable for this moth. As grazing is being increasingly used as a management tool in this area, there is some cause for concern. Accordingly, it has been agreed with English Nature staff that the survey work and characterisation of habitat will be continued this year.

Grazing is of course well known to be detrimental to many insects if it is too intensive or inappropriately timed. Indeed, whatever the grazing regime, it is almost axiomatic that some species will benefit, but that others will be harmed. There are, however, some good broad-brush principles (especially the maintenance of structure, including different heights of vegetation) that are a basis for favouring a wide range of species. If we can afford to do research on the habitat requirements of a few individual species, the results can be very helpful in identifying the range of invertebrate lifestyles that should be taken into account in any management regime. However, there is always the danger that the new knowledge will encourage managers to do some "gardening" in favour of one species, often to the detriment of others. It is unfortunate if detailed knowledge of habitat requirements encourages too much "gardening".



Interestingly, the same issue of *Lepidoptera Conservation Bulletin* provides other examples in which a broad-brush regime, based on good vertical structure, would be better than either over-grazing or under-grazing. In the case of the Straw belle *Aspitates gilvaria*, Graham Collins found that heavy grazing by cattle at a site in Kent (S.E. England) had produced a short turf, considered unsuitable for the adults. However, shorter turf seems to be required by the larvae in the spring. In another example, the Silky wave *Idaea dilutaria* in Wales seems to have been favoured by the "piecemeal" management of a nature reserve, in which hand cutting and burning of gorse had produced a varied mosaic. This ranged from bare earth to low-growing gorse, amongst which the foodplant Common rockrose *Helianthemum nummularium* was present in clumps.

Hawaiian damselflies at risk

Writing in the Spring 2001 issue of the Xerces Society's *Wings* magazine Dan A. Polhemus describes some members of the unique insular dragonfly fauna of the Hawaiian archipelago. Dr Polhemus, now at the Smithsonian Institute in Washington DC, was based from 1990 to 1996 at the Bishop Museum, Hawaii, surveying the distribution and conservation status of this fauna. His article concerns the Hawaiian endemic genus *Megalagrion*, which shows great diversity of size and form. It includes relatively robust, large (>45 mm body length) and brightly coloured species whose larvae develop in swiftly flowing mountain streams (e.g. *M. oceanicum* from Oahu). Others, such as the Pacific Hawaiian Damselfly *M. pacificum*, which breed in seepages and in terrestrial habitats such as moist litter, are more slender and less brightly coloured as adults and have a highly specialised larval gill structure. Yet other species, mainly under 35 mm long and resembling many damselflies of the North American mainland, inhabit slow-flowing or standing waters.

Dr. Polhemus mentions a particular problem that has arisen from the introduction of exotic fish species, particularly mosquitofish and topminnows of the family Poeciliidae. Predation by these fish and by introduced invertebrates has been identified as the cause of serious declines in the populations of several damselflies. The decline was noticed in the 1960s, but it was only when a survey was mounted by the US Fish and Wildlife Service that six species were found to be at risk. These include the formerly common Orangeblack damselfly *M. xanthomelas*, which was noted in the 1930s as having benefited from increased availability of habitats and/or prey following the creation of



gardens and sugar plantations. The decline of this species after the introduction of *Gambusia* topminnows was, however, reported as long as ago as 1948. Now its population on Oahu is confined to a single site in suburban Honolulu.

The threatened *Megalagrion* species seem to be dependent on sites where exotic fish species are absent. Dr Polhemus points out that the surviving population of *M. xanthomelas* in Honolulu occurs in a section of a stream where culverts prevent the migration of these predators. Waterfalls are also a barrier between reaches of streams where *Megalagrion* species still survive and extensive areas from which they have disappeared. He also mentions introduced species of damselfly (e.g. Rambur's forktail *Ischnura ramburii*) that seem able to survive alongside the predatory fish by virtue of defensive behaviours. The native species are more vulnerable because they have not been under evolutionary pressure to develop such behaviour. Although the introduced damselflies do not appear to pose a direct competitive threat to the native species, they have been replacing them due to their behavioural advantage.

In addition to predation pressure, habitat loss and damage has been having adverse effects on Hawaiian damselflies. Dr Polhemus points out that these losses began in 1856, with the development of irrigation systems for sugarcane plantations. This involved the partial or total diversion of streams and was followed by further diversions for tourist resorts, so that the hydrology of the middle and terminal reaches of many streams was seriously altered. Dependent species became extinct in many of the affected areas, as in the cases of *M. pacificum* and the Blackhook Hawaiian damselfly *M. nigrohamatum nigrohamatum* on the island of Lanai, following the complete diversion of Maunalei Gulch in 1911. The problem has been compounded in more recent years by increasingly frequent and severe droughts, perhaps linked with global warming.

Although many populations have become locally extinct, the supposed total extinction of species may sometimes be prematurely assumed. Dr Polhemus points out that two such species have been re-discovered in recent years; the Flying earwig damselfly *M. nesiotes* on Maui and Williamson's Hawaiian damselfly *M. williamsii* on Kauai. He adds, however, two other species that have not been seen for over a century; the Maui upland damselfly *M. jugorum* and the Molokai damselfly *M. molokaiense*.

The Spring 2001 issue of *Wings* is devoted entirely to Odonata and contains several other interesting accounts of habitat damage and of



conservation efforts. It gives the following website addresses for anyone wanting further information about some endangered species.

- for Hawaiian damselflies:
www.bishopmuseum.org/research/natsci/ento
- for Hine's emerald dragonfly in Wisconsin:
www.inhs.uiuc.edu/cae/

Incidentally, the latest issue of *Wings* (Spring 2002) is devoted to invertebrate conservation in the UK. It includes articles about the new Invertebrate Conservation Trust and about the conservation of ancient trees.

Stag beetle survey in Britain: second phase

The People's Trust for Endangered Species (PTES), in partnership with English Nature, is co-ordinating a repeat of the national survey which first took place in 1998. As reported in various issues of *ICN*, the previous survey, together with follow-up observations, showed strong populations in southern England and some as far west or north as Somerset, Gloucestershire and Worcestershire. There was also a recent confirmation of a sighting in Cardiff, well across the Welsh border. The survey pack can be obtained from the PTES, Tel. 0207 498 4533. Information should also be available on the PTES website www.ptes.org



RESEARCH NOTES

Lacewing larvae control tetranychid mites on strawberry

A number of Chinese and Taiwanese biologists have been developing the use of lacewing larvae as biocontrol agents on crops such as strawberry. One of the more promising studies, though dating back to the mid-1990s, can be mentioned as an example of combined economic and environmental benefit. As reported in *Biocontrol News and Information* (Vol. 17, 1996) it was undertaken by C. P. Chang and S. C. Huang at the Taiwan Apicultural and Sericultural Experiment Station at Miaoli.



The study involved a strawberry field in which two tetranychid mites, *T. kanzawai* and *Tetranychus urticae*, were prevalent. Populations appeared in February, mainly on the old leaves. Eggs or larvae of the biocontrol agent, a green lacewing *Mallada basalis*, were released at three-weekly intervals on to every plant during the growing season. This achieved a reduction in the populations of *T. kanzawai* and *T. urticae* of 60 to 90% and 50 to 90% respectively. The cost of control was lower than with acaricides, by as much as US \$233 per hectare, and there were also improvements in yield; by 15% overall and by 7.7% for top class fruit. The proportion of deformed fruits was about 6% less than in crops treated with acaricides.



FUTURE UK MEETINGS

Readers are encouraged to look at the programmes of UK national invertebrate societies, which hold many interesting field meetings. Below is a small selection of meetings being held by other organisations.

London Wildlife Trust

Sunday 18th August: (Richmond Group) Crickets and grasshoppers at Richmond Park. Meet at 14.00 at Richmond Gate, Richmond Hill, TW10. Transport: tube/rail Richmond. Contact: Sandi Bain 07808 314521.

Gloucestershire Invertebrate Group

Saturday 10th August: Crabtree Hill & Foxes Bridge, Forest of Dean. Crabtree Hill is a heathland restoration site; Foxes Bridge is an interesting acid wetland site. Meet at 10.00 in the car park for Woorgreens Lake (SO 628126). Contact: Keith Alexander 01285 651171.

Sunday 8th September: Lydney Deer Park & Priors Mesne. These are two deer parks; the former is ancient and has a very wide range of habitats. Meet at 10.30 at the Café and Craft Shop at Park Farm (SO 623022). Contact: Keith Alexander 01285 651171.

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NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as *bona fide*. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

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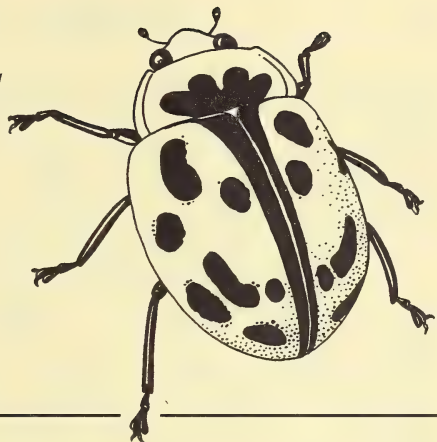
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INVERTEBRATE CONSERVATION NEWS



No. 39, October 2002

EDITORIAL

In the UK, one of the effects of the epidemic of foot and mouth disease in 2001 was the barring of many sites to biological surveyors. The resulting gap in the flow of new data has eventually fed its way through to the publications of most conservation bodies. As many of the items in *ICN* are gleaned from these publications, the present issue has been rather difficult to compile. Although your editor has tried to adhere to his usual criteria for deciding whether items are suitable for inclusion in *ICN*, there has been an increased temptation to widen the net a little.

The task of evaluating items of news for their relevance to conservation is particularly difficult regarding new records of species. Except in the case of a rare species, the discovery of a previously unknown colony within a known geographic distribution could be regarded as less interesting than evidence of an expanding distribution. Expansions and retractions of distributions have, however, always occurred and are perhaps becoming more frequent due to climate change. Also, there are of course some species that have become established beyond their natural ranges due to accidental or deliberate introduction by humans. In a few such cases, the consequences for native flora and fauna can be serious, as in the case of the Cottony cushion scale insect *Icerya purchasi* in the Galápagos (see below).

Very often, a lot of effort is devoted to the conservation of species at the edges of their ranges. This is understandable in cases where the loss of precarious populations could lead to national extinction, especially within an island like Great Britain. On the other hand, it can be argued that fluctuations in range are normal and that to try to resist them too assiduously is rather like emulating King Canute, who allegedly tried to turn back the ocean tide. (It should be noted here



that, according to historians, the wily monarch was merely demonstrating to his excessively sycophantic courtiers that he lacked divine powers.)

The decline of at least some species at the edges of their ranges can of course be attributed to loss of suitable habitat, rather than climate changes entirely beyond their tolerance. Nevertheless, their colonies often depend on very localised niches with the right micro-climate and are therefore highly susceptible to a broad suite of adverse events, unlike their counterparts nearer to the geographic centre of distribution. In a particular locality, extremes of weather can render such micro-sites temporarily unsuitable for a sensitive species. The long-term survival of the species may then depend on its ability to find alternative micro-sites within its normal dispersal range. An example is provided by Clive Bealey's study of the Silver-spotted skipper *Hesperia comma* at Porton Down, southern England (see *ICN* 33). In the hot dry summer of 1995 the larval foodplants were desiccated on the normally favourable warm micro-sites, so that larval survival was favoured only on the cooler north-facing slopes.

Isolation of habitats is of course a problem for many weakly-dispersing species, even well within their geographic ranges. Migrants from populations of such species may fail to colonise sites that, despite providing suitable micro-climatic and other conditions, lie too far away. It can be argued that such species and their habitats deserve more attention than those that might require intensive care in the face of a marginal or changing climate. The arguments that this view could engender may, however, become irrelevant if the present trend of climate warming continues – except of course in the case of species that may be retreating polewards!



NEWS, VIEWS AND GENERAL INFORMATION

UK agri-environment schemes and a new leaflet for farmers

The publication of a new leaflet by Butterfly Conservation (BC), in association with the Farming and Wildlife Advisory Group, has been announced in the Autumn 2002 issue of *Butterfly Conservation News*. The leaflet, written by Dr Martin Warren, BC's Director of Conservation, with the help of farmers and farm advisers, provides advice about



making farms more wildlife-friendly. It concentrates on the more widespread butterfly species that are likely to occur on farmland, including some familiar and attractive ones, such as the Peacock *Inachis io*, the Small tortoiseshell *Aglais urticae* and the Orange tip *Anthocaris cardamines*. There are simple tips on improving habitats for butterflies, especially herb-rich unimproved grassland and also hedgerows, field margins, set-aside land and farm woodlands.

Environment Minister Michael Meacher has welcomed the leaflet as a contribution to the delivery of Biodiversity Action Plan targets and to agri-environment schemes. Such schemes are very important for invertebrates, many of which are at serious risk of local extinction unless they can move between habitats within the wider countryside. Farmland occupies three quarters of the land area of Britain and has been managed in an increasingly intensive manner for several decades, with the help of production subsidies. The shift from such subsidies toward agri-environment schemes has been very modest, but the British government has recently announced an allocation of £500 million over the next three years. This is a welcome response to the Curry report on sustainable agriculture and to a campaign by NGOs in support of its recommendations.

The Autumn 2002 issue of *Butterfly Conservation News* also carries a report about the findings from butterfly transect counts, comparing areas with or without agri-environment schemes (i.e. Environmentally Sensitive Areas or Countryside Stewardship Schemes). The study was undertaken by BC with funding from the government department responsible for awarding grants under the schemes: the Department of the Environment, Agriculture and Rural Affairs (DEFRA). The comparison was made on the basis of a mean population change during the 1990s of 34 species of open habitats.

Counts of the species in the study declined by 14% overall, but the decline was somewhat lower in "scheme sites" (12%) than in non-scheme sites (15.5%). Of the thirty-four species in the study, 13 were considered to be habitat specialists, of which 10 showed more favourable trends at scheme sites than elsewhere. The overall decline highlights the plight of butterflies, and probably of many other invertebrates, even on semi-natural habitats of conservation value. The difference between the scheme and non-scheme sites does, however, suggest that environmentally-friendly grants can at least have a mitigating effect.

A more detailed analysis showed that some species actually increased in abundance at scheme sites; these were mainly butterflies of short and



medium-sward conditions, such as Dark green fritillary *Mesoacidalia aglaia*, Grizzled skipper *Pyrgus malvae* and Silver-spotted skipper *Hesperia comma*. There were other species which declined at scheme sites; these included some associated with scrub, rank grassland and – to a lesser extent – variable sward conditions, such as Large Skipper *Ochlodes venatus* and Speckled Wood *Pararge aegeria*. Indeed, there is cause for concern about the local impact of scheme management on some species that require a varied vertical vegetation structure, such as the Duke of Burgundy fritillary *Hamearis lucina* and the Small blue *Cupido minimus*.

The comparison between “scheme” and “non-scheme” sites is a very broad-brush approach, but the next phase of BC’s study will aim to identify beneficial and harmful practices on different types of habitat. The results should help to inform officials of DEFRA, when sites are being entered into schemes.

The leaflet can be obtained free by sending an A5 stamped, addressed envelope to BC’s head office: Butterfly Conservation (*farm leaflet*), Manor Yard, East Lulworth, Dorset BH20 5QP.

More on brownfield conservation

The official policy of using brownfield sites wherever possible to meet the huge demand for new houses in the UK continues to cause concern, especially since the Deputy Prime Minister’s announcement of increased house building in the London area. The mass media and the generalist environmental organisations have aired a range of concerns about the plans, but they still seem largely unaware of the biodiversity issues.

Some of the wildlife trusts are continuing to raise the brownfield banner, thus challenging what could be taken as a seeming conspiracy of silence between government, the media and various NGOs. An important contribution is a report from the London Wildlife Trust entitled “*Brownfield? Greenfield? The threat to London’s unofficial countryside*”. The report, produced on behalf of the London Brownfields Forum, explains why brownfield sites are important and sets out some measures for the assessment and protection of their wildlife value.

Another valuable contribution to the debate comes from Terry Coult, writing in the summer/autumn 2002 issue of the Durham Wildlife Trust’s magazine. He mentions a colliery site, abandoned around 1960 but now on the local authority’s list for potential development. Its fauna and flora is now far richer than could be found on most greenfield



sites, and includes the Dingy skipper butterfly *Erynnis tages*, a listed species in the Durham Biodiversity Action Plan. Mr Coult points out that, despite the official policy to develop brownfield sites, the relevant government guidance note (PPG3) allows the protection of sites that have sufficient value (including conservation value) to outweigh their re-use.



SITES AND SPECIES OF INTEREST

Threat to Bog bush-cricket in Scotland

including information from an article in the Orthopterists' newsletter, by Dr Peter G Sutton. AES Habitat Conservation Officer

In Britain, the Bog bush-cricket *Metrioptera brachyptera* is characteristic of lowland heaths and clearings in damp heathy woodland, typically associated with cross-leaved heath *Erica tetralix* and purple moor-grass *Molinia caerulea*. Peter Sutton considers it to be an important indicator species for wet heathland habitats. In the *Atlas of Grasshoppers, Crickets and Allied Insects of Great Britain and Ireland* (1997) by Harding and Haes, it was quoted as having "Notable B status".

Like various other Eurasian Orthoptera, the Bog bush-cricket has a wide Palaearctic distribution but is confined within Britain to relatively warm areas. In their book *Grasshoppers and Allied Insects of Great Britain and Ireland* (1988), Marshall and Haes state that it is a low-altitude insect in Britain, even in the extreme south. Their distribution data do, however, show pre-1961 records as far north as Cumbria in the far north-west of England. They also referred to a colony in SW Scotland that had been mentioned by Ragge in his book *Grasshoppers, Crickets and Cockroaches of the British Isles* (1965). They stated, however, that this colony had not produced any post-1960 records. Their view in 1988 was that a strong colony at Fylingdales was then the most northerly extant one in Britain.

By 1997, when Harding and Haes produced their atlas, the Bog bush-cricket had been re-discovered in south-west Scotland and was shown as such on their distribution maps. They described it as "*native in scattered heathy localities throughout England and Wales, but most common in the south of England (excluding Kent). Recently found at one site in south-west Scotland.*"



The Scottish site in question is Aucheninnes Moss, Dalbeattie, Dumfries-shire, where the habitat consists of raised bog, classified in the UK as a "threatened Biodiversity Action Plan Priority Habitat of national and international importance". According to a Friends of the Earth statement (Independent News Press Release, 08/04/01), 94% of Britain's Raised Bog habitat has been lost since 1945. Raised bog is also listed under the EC Habitats and Species Directive, under which sites containing this habitat can be given enhanced protection as Special Areas of Conservation.

In the Orthopterists' Newsletter, Peter Sutton expresses serious concern about the use of Auchennines Moss for waste disposal. He states that this activity has already destroyed a large area of raised bog habitat and is set to continue under the policy of the Dumfries and Galloway Council. The policy favours a planning application which, if successful, would allow the continued development of the existing landfill site. Peter Sutton expects that this would lead to the extinction of the Bog Bush-cricket in Scotland, as Auchennines Moss is its only known site north of the Border. He regards the proposal as contrary to the Dumfries and Galloway Biodiversity Action Plan (1999), under which the Bog bush-cricket is a listed species. According to information published in the Plan, Dumfries and Galloway contained approximately 3000 ha of raised bog 150 years ago, but only 7 % (210 ha) remained by 1989. It is, however, also stated that this remaining area represents approximately 3.5% of the remaining UK resource.

A recent item in *British Wildlife Magazine* (vol. 13, August 2002) refers to this case. The Council's own officer responsible for biodiversity conservation is quoted as concluding that "the proposal would have a significant biodiversity impact". Reportedly, The Scottish Wildlife Trust is opposed to the proposal, while Scottish Natural Heritage has requested a full ecological assessment.

A selection of new species records in Britain

As mentioned in the editorial, reports of species colonising areas beyond their former ranges should perhaps not always be considered newsworthy from a conservation standpoint. Such news is, however, always of general interest – especially when there is a shortage of more detailed stories about invertebrates in relation to their habitat requirements.

Climate change seems to be favouring the northward spread of various species of European Orthoptera and it is interesting to note



that one such insect, the Southern oak bush cricket *Meconema meridionale*, has been recorded for the first time in the British Isles. It is very similar to the native Oak bush cricket *Meconema thalissinum*, except that its wings very short and scale-like. According to the late summer/autumn issue of the Surrey Wildlife Trust's magazine, Roger Hawkins found a single male on a birch tree *Betula* sp. in Thames Ditton, south-west of London, in September 2001.

More details about *M. meridionale* are provided by John Widgery of the Orthoptera Recording Scheme, writing in the February 2002 issue (vol. 13) of "*British Wildlife*". It seems that, having been shown Roger's specimen, fellow Surrey entomologist Derek Coleman thought that he had also seen the species in his garden at Carshalton, 15 km to the east. Upon investigation in mid-October, Derek found several females, two of which were laying eggs, on a sycamore tree *Acer pseudoplatanus* in his garden. Just two days later, another female was found in a garden in the Berkshire town of Maidenhead, about 35 km west of the first sighting. We do not yet have any information about records that may have been made in 2002.

Although the Southern oak bush cricket is flightless, it has been observed over a number of years to be spreading northwards within the European continent from the Mediterranean region. It had reached northern France and The Netherlands by 1995 and probably needed just a means of crossing the sea to reach England. Apparently, it is in the habit of climbing on to vehicles after falling out of trees and thus hitching lifts. Adults can be found on trees and other surfaces such as house walls and motor vehicles from late August until as late as the end of November if the weather remains mild (i.e. later than is usual for *M. thalissinum*). It is apparently worth looking at tree trunks after dark on mild evenings, especially in urban areas, when the females may be laying their eggs. Roger Hawkins would be interested to know of other UK records; he can be contacted by phone on 01293 783397.

Another insect newly recorded in Britain is a bumblebee, *Bombus hypnorum*, which was reported by David Baldock of the Bees, Wasps and Ants Recording Society. His first sighting, reported in British Wildlife (vol. 13, February 2002), was in south Wiltshire in southern England but, in a later note in the August issue, he mentions that there was an unconfirmed sighting by David Goulson three years ago in his Southampton garden. He also reports that there have been many sightings in 2002 right across the southern coastal counties of Hampshire and Sussex, indicating that the bee seems to be well established. According to David Baldock, the bee looks like a very dark



Bombus pascuorum, but with a white "tail", which is more obvious in flight than at rest. On the European continent, it can be found nesting mainly in aerial niches such as tree holes and bird-boxes. David Goulson, in whose garden the bee now nests, is collating records and would like to receive reports and photographs. His address is University of Southampton, School of Biological Sciences, Bio-Sciences Building, Bassett Crescent East, Southampton SO16 7PX.

By the time that this issue of *ICN* appears, it will probably be far too late to find *Bombus hypnorum*, which is active until about the end of September. If, however, there are still any flowers of ivy *Hedera helix* in evidence, it might be worth looking for another bee, which David Baldock has mentioned as being newly recorded in Britain (and also new to science, when first correctly recognised in western Europe in 1993). This is a solitary mining bee, *Colletes bederae*, which David reports to be well established in southern coastal regions of Dorset and Devon and probably long overlooked. It is the size of a worker honeybee or larger, with conspicuous yellow abdominal bands. Identification seems to be a specialist procedure, as it closely resembles *C. halophilus*. A useful clue is that its floral food source is almost confined to ivy. Records should be sent to George Else at The Natural History Museum, Department of Entomology, Cromwell Road, London SW7 5BD.

Rare beetles at Woolmer Pond, Hampshire

Woolmer Pond, in the southern English county of Hampshire, lies within Ministry of Defence land in the Longmoor military training area. It is the subject of an article in the ministry's conservation magazine *Sanctuary* by entomologist Dr Jonty Denton of the Longmoor MoD Conservation Committee. He refers to the writings of the local but nationally famous 18th century naturalist the Revd. Gilbert White, who described an extensive area of open water, well stocked with fish whose food consisted largely of insects attracted by the dung of cattle wallowing in the pond. The water is naturally of low nutrient status and would not otherwise support many fish. For this reason, it provides conditions suitable for other aquatic animals that are rare in southern Britain.

Dr Denton writes that, in the 19th century, when a large expanse of water still persisted, the eminent entomologist J. Curtis recorded an apparently relict population of a diving beetle, *Hygrotus novemlineatus*. The British populations of this beetle are now confined to upland lochs and tarns, no further south than the moors of Yorkshire. Dr Denton writes that it may have persisted at Woolmer from a period soon after



the last glaciation; this would be consistent with the view that the pond is a natural feature. Long-term natural persistence of standing water bodies is, however, unusual in lowland England, as they tend to become silted up or overgrown by vegetation. Indeed, by the 1950s, Woolmer Pond had become largely overgrown by a sphagnum swamp to the detriment of many rare species, including the Natterjack toad *Bufo calamita*, which was not found in the pond after 1963.

Restoration of the pond was undertaken by the MoD over a ten-year period, starting in 1983. As a result of the vegetation clearance, a seasonal water body exceptionally large for southern England now forms every year, eventually receding to expose a sandy bed. As a measure of the success of the restoration, Dr Denton highlights the reappearance of two of Britain's rarest animals at the pond. These are the Natterjack toad, which was known to have survived elsewhere within the surrounding forest, and the Spangled water beetle *Graphoderus zonatus*. As this beetle's survival probably depends on the absence of predatory fish, it seems likely to have persisted nearby in smaller water bodies during the period when fish were abundant in the main pond. An excellent photo of the beetle, by Dr Roger Key, is shown in Dr Denton's article. Two other rare beetles that have been discovered at the site are the weevils *Nanophyes gracilis* and *Phytobius olsoni*, which feed only on Water purslaine *Peplis portula*.

Biodiversity Action Plan heathland invertebrates in Dorset, southern England

In the 2002 issue of *Sanctuary*, the conservation magazine of the Ministry of Defence, Amy Collins, Rachel Hadley and Rebecca Slater provide a summary of the results of survey work on defence lands in Britain during 2001. Restrictions on access to sites during the foot and mouth epidemic took their toll, but there were some interesting discoveries.

At Lulworth, Dorset, on the south coast of England, a member of the local MoD Conservation Group, Mr. Schofield, found three RDB Priority species. One of these was the Mottled bee-fly *Thyridanthrax fenestratum*. According to its Biodiversity Action Plan, it is a species of open, heather-dominated heathland, where it is often found along sandy paths and in other sparsely vegetated sandy areas where it can find the heat that it needs, as well as the flowers which its adults visit to feed on nectar. It is considered with some uncertainty to be a parasitoid either of the sand wasp *Ammophila pubescens* or of caterpillars, which the wasp collects to feed its larvae in burrows in bare sand.



Dorset is one of several southern English counties in which *T. fenestratum* is known still to occur. Although some good populations remain, the distribution has become much more restricted in recent decades, as open heaths have become smaller and fragmented, and management problems have increased. Its distribution on the European continent ranges widely across central and northern areas, but its current status there is unknown. In Great Britain it has a "Rare" classification. Its BAP Lead Partner is the British Entomological and Natural History Society.

Another of the species found at Lulworth in 2001 was also a bee fly, the Heath bee-fly *Bombylius minor*. Like *T. fenestratum*, it is a parasitoid of solitary bees in its larval stage, later feeding on nectar as an adult. The host bees belong to the genus *Colletes*, especially *C. daviesianus*. The bee-fly uses burrows where its hosts nest in vertical sand-banks and possibly also on flat ground. Unlike *T. fenestratum*, its current range in Great Britain is restricted to a few sites in the county of Dorset, earning it a "Vulnerable" classification. Old records show that it was previously more widespread in southern Britain. Its decline is thought to be due to the loss and fragmentation of heathland habitat, including verge heath, owing to development and scrub encroachment. Other factors cited are inappropriate heathland management and the loss or shading of vertical sand banks, with consequent decline in numbers of the host bees. Interestingly, there are current records of species on the Isle of Man, but the taxonomy of the genus is said to require revision. The BAP Lead Partner is the British Entomological and Natural History Society.

RESEARCH NOTES

Ladybird release for biological control in the Galápagos Islands

The Galápagos Islands, off the coast of Ecuador, provide perhaps the most famous example of a unique island fauna. The nineteenth century studies of Charles Darwin in the Galápagos, especially on the evolution of finches, have contributed to this fame and are honoured actively by the current work of the Charles Darwin Research Station (CDRS); part of the Charles Darwin Foundation for the Galápagos Islands.

One of the most important types of problem that have to be addressed by the CDRS is the adverse impact of introduced plants and animals on the native fauna and flora of the islands. One of the most harmful introduced species is the Cottony cushion scale insect *Icerya*



purchasi, an Australian native, which has become a pest of various crops, especially citrus, all around the warmer parts of the world. According to recent publications of the CDRS, *I. purchasi* has colonised thirteen islands in the Galápagos since its first appearance there in 1982 and is now killing approximately 19 plant species, including the white mangrove and five endangered species, of which two are on the verge of extinction: *Calandrinia galapagosa* and *Scalesia atractyloides*. In total, it is able to colonise at least 62 native plant species, including sixteen endemic species, as well as citrus and many other cultivated plants.

Interestingly, *I. purchasi* became the target of the first successful modern usage of an introduced biological control agent after it became a pest of citrus crops in California in the nineteenth century. The British-born entomologist C. V. Riley, working for the US Department of Agriculture in the 1880s, engaged assistants to search for natural enemies of the scale in Australia. Among these, although not Riley's first initial choice, was the ladybird now known as *Rodalia cardinalis*. It proved to be a very effective biocontrol agent against the scale insect, although perhaps more by luck than judgement as it was released commercially without much study of its biology.

Although *R. cardinalis* has been used successfully in many countries, it had not until this year been introduced to the Galápagos, where there is an over-riding need to avoid any new introductions of species that might harm the native fauna or flora. The damage being done by the Cottony cushion scale was, however, causing great concern, heightened by the absence of any safe and effective form of chemical control. Thus, in 1996 the CDRS and the Galápagos National Park Service (GNPS) took advice from Californian specialists to conduct research on *R. cardinalis* as a candidate biocontrol agent under strict security, so as to determine any possible danger to Galápagos wildlife from its release into the wild.

According to CDRS web pages, the experiments involving *R. cardinalis* began in 1999, using a new entomological isolation laboratory at the CDRS. Studies on the impact of the scale insect on three species of plant – endemic cotton, white mangrove, and *Scalesia belleri* were set up in parallel. One of the main questions to be addressed regarding *R. cardinalis* was whether it might prey upon native insects in the Galápagos. There was also a need to test the imported Australian stock of the ladybird for the presence of parasites and pathogens.

In the search for potential non-target prey species, it was necessary to study the native scale insects of the Galápagos. This proved difficult but resulted in the discovery of at least two species new to science and the re-discovery of a species known as the Ground pearl *Margarodes*



similus, which had not previously been found since an original record in 1924. Among the native scales, the Ground pearl is the closest relative of the Cottony cushion scale and was found to be eaten by the ladybird in feeding trials. It is, however, considered not to be at risk as it is protected by living underground. Of the remaining seventeen native and introduced species that were collected from all over the archipelago, none was attacked by the ladybird.

The research also involved native scale predators, including ladybirds, from the Galápagos, none of which was found to feed on *I. purchasi*. There was also some research to investigate the possibility that a toxic secretion of the ladybird might harm insectivorous birds. This involved a feeding trial, which showed no adverse effects on the birds that were tested.

On the basis of the research, the Charles Darwin Foundation developed a risk analysis, which was presented to the Galápagos National Park in November 2001. It was subsequently decided that the ladybird should be released into the wild, starting on 25th January 2002. The release areas were determined by giving priority to important habitats and to endangered plants affected by *I. purchasi*. Examples include *Darwiniothamus* spp. and *Scalesia cordata* in Alcedo and Sierra Negra Volcanes and *S. atractylodes* in Santiago. Areas important for citrus growing were also included. According to Dr Charlotte Causton of the CDRS, a two-year intensive monitoring programme was planned, so as to determine the effectiveness of *R. cardinalis* as a biocontrol agent for *I. purchasi* and to observe the interactions with the fauna of the Galápagos. Volunteers were to be recruited from among the community so as to augment the scientific monitoring team. Later in 2002, it was reported in the media that the release had taken place as planned.





FUTURE MEETINGS

As ever, some of the major UK invertebrate societies have published interesting programmes of indoor meetings for the autumn and winter. The following list includes a few of these meetings, selected for their special relevance for conservation.

British Entomological and Natural History Society

Tuesday 20th November 2002: "Of cabbages and kings"; a talk by Dr Roger Key about the Lundy cabbage and its associated insect fauna. Meet at the rooms of the Royal Entomological Society, 41 Queens Gate, London SW7. 18.00 for 18.30 start.

Tuesday 10th December 2002: "The future of the Spider Recording Scheme"; a talk by Peter Harvey. Place and hour as above.

Tuesday 14th January 2003: "Two potter wasps: their ecology and conservation"; a talk by Mike Edwards (jointly with the Bees, Wasps and Ants Recording Society). Place and hour as above.

Saturday 1st March 2003: "Life after death"; a conservation workshop on deadwood invertebrates, to be led by Dr Roger Key, Matt Shardlow and Dr Ian McLean at the Society's headquarters, Pelham-Clinton Building, Dinton Pastures Country Park, Davis Street, Hurst, nr Reading Berkshire. Start 10.30; end 16.00. Anyone wishing to attend should first contact Dr McLean at 109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE28 4TZ.

Royal Entomological Society

The RES has special interest groups (SIGs), which include the GMOs & Insects Group and the Insect Conservation Group. Both these groups hold day-long meetings approximately once a year for a programme of oral and poster presentations, usually followed by an evening talk by an invited speaker. The usual venue is at the society's rooms, 41 Queens Gate, London SW7. A small fee is normally payable by non-RES members/fellows.

For information about the next GMOs & Insects Group meeting, please contact Dr Tanja H. Schuler (tel. 01582 763133 or e-mail Tanja.Schuler@bbsrc.ac.uk)

For information about the next Insect Conservation Group meeting, please contact Dr Alan Stewart (direct dial tel. 01273 877476 or e-mail a.j.a.stewart@sussex.ac.uk)

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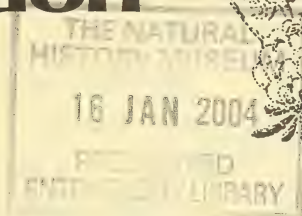
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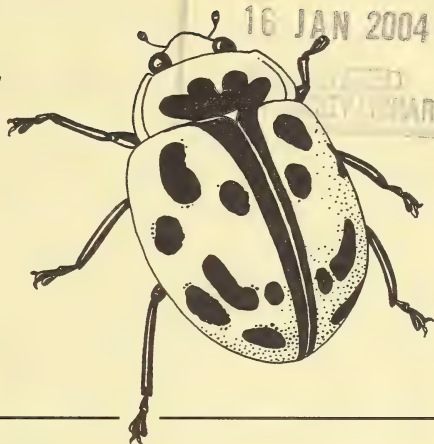
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INVERTEBRATE CONSERVATION NEWS



No. 40, February 2003

EDITORIAL

In December 2002, the invertebrate societies in Britain received the official recommendations for quinquennial changes to our list of legally protected species. There are few details on which to comment, as the only recommended changes to the invertebrate list are the addition of the Roman snail *Helix pomatia* and two burnet moths, the Narrow-bordered five-spot, *Zygaena lonicerae jocelynae* and the Slender Scotch, *Z. loti scotica*.

Although it is not generally practicable to prove whether laws against collecting are of any significant benefit to invertebrate populations, there is probably widespread acceptance that certain species may deserve such protection on the basis of the precautionary principle. The statutory agencies in Britain, unlike their counterparts in certain other European countries, have the knowledge and wisdom to realise that such species should be selected according to rigorous criteria. They are the very small percentage of invertebrates that are not only seriously endangered on a national or international scale, but that also have characteristics which render them particularly vulnerable to the attentions of the few individuals who could nowadays be described as unscrupulous collectors.

A ban on collecting would be unnecessary and counter-productive for the many endangered species that are not under any threat from collectors. Thus, it is important to have evidence of any such threat before adding a species to the list for full protection. The two species of burnet moth now being recommended for listing were recently alleged to have been collected for sale in excessively large numbers. Without access to verified facts about this case, some entomologists are now questioning the current basis for deciding whether a species is being targeted. Fisher's estuarine moth *Gortyna borelii* is sometimes quoted as



an example of a species which received legal protection following allegations of over-collecting, despite some doubts about the significance of the alleged activities. Thus, although the current recommendations are modest, there is probably some need to define the burden of proof that is needed for targeting to be identified as a risk factor.

Another potential problem relates to law enforcement. In principle, it is absolutely right to say that the law should be enforced. Otherwise, it can fall into disrespect. The trouble is, however, that some laws could make criminals of essentially law-abiding citizens if enforced without discretion. For example, there is provision in the UK to charge people with the possession of certain things such as offensive weapons (or, increasingly these days, of almost anything that could be used in terrorism). It is, however, to be hoped that this provision is invoked only regarding certain specified weapons, such as guns, or when there is a genuine suspicion of criminal intent or an unacceptable risk to people or property. Otherwise, law-abiding citizens would risk arrest whenever carrying everyday objects that could conceivably be used as weapons.

In Britain, some aspects of the Wildlife and Countryside Act seem to fall into the 'long-stop' category, for example regarding the possession of specimens of fully protected invertebrates. Quite rightly, there are exemptions with respect to specimens collected prior to the legal protection of the species concerned. In 1980, before this law was enacted, the legislators insisted that the burden of proof for such an exemption should rest with the person being accused. Their insistence was based on understandable practicalities of enforcement, but they arguably infringed the fundamental principle that you are innocent unless proven guilty.

The fact remains that very few invertebrate fanciers have been criminally charged in Britain during the 21 years since 'Schedule 5' was applied. There may, however, be a problem lurking behind the laudable and ostensibly irrefutable argument that the law must be enforced. As mentioned in an earlier *ICN* editorial (June 2002), over-zealous enforcement could be a headache both for the police and for *bona-fide* collectors. Anyone carrying collecting equipment could in theory be subjected to surveillance and perhaps challenge. Similarly, anyone in possession of legally held specimens of protected species needs to think whether he or she would have adequate proof in the event of being challenged by the police.

Perhaps one of the saddest facts is that there is any call to write an editorial on this topic. The collecting issue is a very minor one as far as invertebrate conservation is concerned, and it would be nice if we could get on with the job without such distractions.



NEWS, VIEWS AND GENERAL INFORMATION

An attempt to tone down American wildlife protection

This issue of *ICN* carries an item about a campaign to de-list the only dipteran that has been listed for protection under the American Endangered Species Act (1973). At the same time, there has been a move to lessen the provisions of the Act itself, by exempting activities on private property and on military lands, together with any activity affecting plant life. This action has been taken by retiring House Resources Chairman James V. Hansen, through a bill to "restore the original intent" of the Act.

According to an e-mail message circulated last autumn by Matthew Shepherd of the Xerces Society, Mr. Hansen described the bill as "a shot across the bow from a retiring chairman" and as a blueprint for bold changes that reflect what Congress originally intended when it passed the law more than 30 years ago. He is quoted as saying "I'm just greasing the wheels for change here, giving my colleagues something they can act on swiftly in the next Congress."

As can be seen from the *ICN* item about the protected fly in California, there is a growing perception that the ESA is costing American consumers and taxpayers a great deal; more than a billion dollars a year in litigation, lost profits, lost jobs and rising operating costs for both government and business, according to estimates from private groups. There are also complaints, in some instances, that private property owners can't walk their own property. It is also said that certain military bases can't use their own land for mission-critical training at a time when America is on the verge of war.

Mr. Hansen issued the following statement: "After working with this law during my 22 years in Congress, I've concluded it's the most powerful law in the land. It can be used to thwart everything from the training of our fighter pilots to the farmer's simple desire to plant a crop in his field so he can feed his family.

"Right now, in this country, the rights of an endangered fly or a species of seaweed take precedence over national security, commerce and many people's right to the enjoyment of property and the pursuit of happiness.

"Our founding fathers would be appalled. This government was founded on a few key concepts, among them the need to provide a common defense and the protection of individual property rights. These days, ESA is tripping up even that. This legislation moves the federal



government in the direction of working cooperatively with private landowners. Under current law, the only option to protect endangered species is legal confrontation.

"Congress crafted this law nearly 40 years ago to protect large species like the grizzly, wolf and bald eagle from extinction. Frankly, the ESA hasn't done a particularly good job of protecting anything but lawyers' pocketbooks. Outlawing DDT did more for our wildlife than the ESA has done.

"Meanwhile roads have been stalled, homes lost, countless jobs forfeited and thousands of acres locked up because of this ham-fisted law. Republicans and Democrats have long recognised that something needs to be done to fix the Endangered Species Act. I'm just making it easy for everybody next year by dropping a bill now with the three simple changes that could fix this law.

"If we exempt private property, military lands and all plants from the ESA, we would, in short order, have a more prosperous and secure nation and still have a healthy and abundant wildlife. We would create thousands of jobs, jump-start our economy, free up our clogged court system and still protect our wildlife.

"I'd wager my federal pension you could make these changes and the populations of threatened and endangered species would remain the same. The numbers didn't improve when we started stripping people of their rights. I doubt they'll go down any once we restore those rights."

As mentioned in the above *ICN* editorial, it is usually impracticable to assess whether anti-collecting laws are achieving significant protection of populations. However, there is a much better chance that laws such as the American ESA are of value because they protect the habitats where the listed species occur. Mr. Hansen's claim that the ESA has not benefited wildlife needs to be carefully considered in this context. Equally, it is always important to ask whether the benefits of any law might be outweighed by its curtailment of personal liberty. Much less deserving of respect, however, is Mr. Hansen's assertion that plants and invertebrates do not merit protection.

Great Britain: review of protected species list

Schedule 5 of the Wildlife and Countryside Act 1983, which includes invertebrate species, is reviewed quinquennially under the aegis of the Joint Nature Conservation Committee. The fourth review reached the recommendation stage in December 2002, and the resulting report has



been circulated to all the organisations that were consulted earlier in the process. The recommendations are being considered by the relevant Government departments, who will "consult widely in due course" before laying the necessary Orders before Parliaments for approval.

As mentioned in the above *ICN* editorial, only three invertebrate species have been recommended for addition to Schedule 5, but eight vertebrates have been recommended for full protection: one mammal (the water vole *Arvicola terrestris*, already under partial protection) and seven species of fish. The review also involved Schedule 8, which is the list of protected plants, but no changes to this are recommended.

Full protection is recommended for two of the three invertebrates listed for possible addition to Schedule 5, these being the burnet moths *Zygaena loniceræ jocelynae* (the Narrow-bordered five-spot burnet), and *Z. loti scotica* (the Slender Scotch burnet). As mentioned in the above editorial, this recommendation stems from a recent case involving alleged serious over-collecting. The third invertebrate species is the Roman snail *Helix pomatia*, which is recommended for listing in respect of section 9(1) of the Act, which covers killing, injuring and taking, and also Section 9(5), which covers sale.



SITES AND SPECIES OF INTEREST

The Delhi Sands fly in California

In autumn 2002, Matthew Shepherd of the Xerces Society circulated some e-mail messages about this "flower-loving fly" (*Rhaphiomidas terminatus abdominalis*, family Apioceridae), which in 1993 became the first dipteran to be protected under the American Endangered Species Act. Its protected status (now classified as "endangered") has aroused recent controversy because some of its last remaining habitats are intended development sites. The following compilation is drawn partly from the Xerces e-mail messages, from the website of Essig Museum of Entomology (University of California, Berkeley), and from an article co-authored by Shawnetta Grandberry and Chris Nagano of the Fish and Wildlife Service (*Endangered Species Bulletin* (Vol. 23; 24-25, Sept./Oct.1998).



The adult flies, which measure about 2.5 cm in length and have orange and brown markings, are nectar feeders, hovering while feeding and darting rapidly between flowers, rather like bee-flies of the family Bombyliidae. They are active during August and September, during which the females each lay about 40 eggs in sand. The larvae, which are thought to be predatory, develop entirely within the sand, a phase of the life cycle which may explain why the fly is confined to the semi-arid Colton Sand Dune system of San Bernadino and Riverside counties in the Los Angeles Basin of southern California. The fly's English name is derived from that of the fine sandy soils, which are known as the Delhi Series Sands.

The fly is thought to have been formerly widespread over 40 square miles (110 km²). Extensive development of the dune system, initially for agriculture and latterly for industry and housing, has left only an estimated 2-3% of the remaining suitable habitat. This lies on an estimated 1,200 acres (486 ha) of private land and is under a constant and increasing threat of development. It is believed that even the remaining colonies, about twelve in number and comprising only the subspecies *R. terminatus abdominalis*, would have been lost without legal protection. The only other subspecies, *R. terminatus terminatus*, is believed to have been wiped out by the virtual elimination of its only habitats in the El Segundo dune system and the sandy alluvial plain, partly due to the construction of Los Angeles International Airport in the 1960s.

Apparently, an outcry followed the US Government's addition of a "mere fly" to the protected list in 1993. Indeed, in their article, Shawnetta Grandberry and Chris Nagano recall that some reporters claimed at the time that the "Feds" had gone "crazy." More recently, according to the e-mail messages circulated last autumn, local city mayors were campaigning to remove the fly from the protected list. Their view was that its protected status was "exterminating" their economy. Indeed Mayor Deidre Bennett of the City of Colton was quoted as saying that, in the view of the majority of Americans with any common sense at all, the flies were pests to be swatted.

Some background to the conflict is provided by a press article by Ellen Braunstein of the Press-Enterprise. She reports that the fly's protected status has allegedly caused major financial setbacks to projects all over San Bernardino and Riverside counties. For example, in 1995, the sighting of eight of the flies by U.S. Fish and Wildlife officials forced San Bernardino County into an expensive redesign and relocation of the Arrowhead Regional Medical Center facility. More



recently, a biological survey of another development site (the Empire Center), partly owned by the City of Fontana, revealed four adults of the fly. City leaders reacted by seeking to remove the fly from the protected list, fearing that development at the Empire Center and road improvements would otherwise be prevented. It seems that there were already financial legal problems with this development, and that the discovery of the fly was the last straw for the city leaders. One of them commented, "It is ridiculous that we are letting a fly stop progress. My immediate reaction when I see a fly is to swat it away".

A different press report, also circulated by Xerces, mentions another case where development was recently prevented. It seems that City officials in Colton broke off several months of negotiations with the Fish & Wildlife Service in Carlsbad over a costly plan to conserve land for the fly in exchange for a permit to build a \$10 million sports complex on 15 acres (6 ha) where the fly was found during the summer. Colton officials have also been complaining about a ban on the use of heavy machinery at sites where it could harm the fly's underground larvae. There is a severe problem of "trash hauling" (known in Britain as fly-tipping) at a highway intersection where the fly occurs. The US Fish and Wildlife Service (FWS) has said that removal of the rubbish must be done by hand instead of machine; an option which the City officials say they cannot afford.

A recovery plan prepared by the FWS recommends the establishment of three recovery units within the historical range of *T. terminatus abdominalis*. The plan's success will depend on the co-operation of private landowners in protecting currently occupied habitat and restoring habitat elsewhere. Already, the FWS has pledged \$1 million to create a habitat on a 63 acre (23 ha) site in south Fontana known as Southridge Village. The construction of 300 homes was previously halted there because of the fly's presence. The best opportunity for creating a reserve is said to exist at a 350 acre (142 ha) area largely owned by two sand and gravel mining companies. The site already supports the fly's largest known population and is large enough to include a reserve which would be viable even without the use of intensive management. However, the site lies within an enterprise zone, which confers significant tax and other economic incentives for commercial development.

Although California is no stranger to conflicts between species protection and development, the outcry against this fly seems to demonstrate the prejudice which some people still show towards "creepy crawlies", as compared with fur or feather, or even pretty



butterflies. It remains to be seen whether such prejudice will diminish in the 21st century, but for the present there remains some advantage in drawing attention to the more overtly attractive species that can benefit from site protection. In the case of the Colton Dune System, the protection of the few remaining areas of intact habitat will benefit many plants and animals which, like the Delhi Sands fly, are threatened by development; perhaps some of them will gain more public sympathy than a mere fly.

Worcestershire's Ancient Tree Register

by Geoff Trevis, AES Conservation Representative for Worcestershire

The Ancient Tree Forum has focussed attention on the dead and decaying wood habitat and entomologists cannot now be unaware of its importance to many rare and threatened species. Work by several entomologists in Worcestershire has demonstrated that this English Midland county has a particular responsibility in this regard, having many sites with ancient trees growing in open situations such as parklands and commons. Early field work concentrated on Bredon Hill, an outlier of the Cotswold limestone (see Whitehead 1996). Subsequently the range of enquiry has extended with the discovery of ancient trees in the old deer parks around Bredon, in country estates such as Croome and Hanbury and, perhaps most excitingly, on farmland in the south and west of the county. West Worcestershire woodlands are of particular importance for veteran limes, both *Tilia cordata* and *Tilia platyphyllos*.

In recognition of our responsibility, the Worcestershire Biological Records Centre has established an ancient tree register with the objective of mapping and marking all of the county's significant trees. Two forms have been produced that allow anybody to submit records to the Centre. The first, for those with time and appropriate access, is designed to record details of the tree, including girth, height, bole height, number of trunks, state of the crown and more besides. The second is simpler, requiring only species, location and any notes and flags up trees of potential importance that can be visited by an experienced recorder at a later date. In all cases, of course, a map reference is requested and, if possible, a photograph should be included.

The scheme has only just been launched but already exciting finds have been made with significant records of saproxylic invertebrates. It is too early to report in more detail but I hope it will be possible to do



so when more data have been acquired and analysed. In the meantime, if anybody would like more information it can be found on line in the Worcestershire BRC newsletter, the Worcestershire Record, (Green and Tilt) at www.wbrc.co.uk. Also, if any members in this part of England would like to help with the survey they can get the details from the website or telephone me on 01905 774952 (evenings or weekends).

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***Brachyptera putata*: a “Biodiversity Action Plan” stonefly in Scotland**

Ian Middlebrook, who is running the UK's “Action for Invertebrate” project from the Natural History Museum in London, has included the following item in a recent report to the umbrella group Invertebrate Link.

A major survey of known and potential sites in Scotland for this endemic stonefly was conducted by Michael Hammett during the winter of 2001/2002. This proved to be very successful, particularly in the Highland region where larvae were found at 19 of the 30 sites visited - including several new sites. Results were not quite so good in the Grampian region, where the stonefly was not found at any sites on the Deveron or the Don, despite many modern records for those rivers. The Don in particular was generally poor for stoneflies, having become consolidated with fine sands.

Michael's work also allowed some preliminary conclusions to be reached about the autecology of this species. Whilst it was originally thought to be a species of the middle/lower stretches of rivers, its main centres of population now appear to be in the upper reaches where young larvae are more abundant. However, they can “drift” downstream and emerge as adults some way from the core breeding area - leading to inappropriate assumptions about habitat preference.

***Anisodactylus poeciloides*: a coastal carabid beetle in England**

This beetle was another of the “BAP” priority-species included in Ian Middlebrook's recent report to Invertebrate Link.

Peter Hammond has been conducting an extensive survey for this beetle along the Essex coast this year, and has succeeded in finding it



in several areas - some new sites and some near previously recorded localities. The beetle has clearly been under-recorded in this county since Peter himself last found it during the 1960s.

Alex Williams has continued his survey work in north Kent where he has confirmed the presence of this beetle at Teynham Levels. Searches beyond Kent around Rye Harbour and Lymington were unsuccessful. He also conducted a small pit-fall trapping study at a suitable site on the Isle of Sheppey, where *A. poeciloides* was caught in traps adjacent to a dyke, but not in traps set four metres or more from the watercourse.

The public inquiry into the Dibden Bay Port development has been under way since the autumn of 2001, and was still going strong in 2002. The section on nature conservation was covered after Easter, when Peter Kirby gave key evidence related to the invertebrates of the site. He highlighted *A. poeciloides* as one of the most important species found there, and much questioning centred around the habitat preferences of this species and *Amara strenua* – another UK BAP priority ground beetle found in similar habitats.

Larval ecology of the Silky Wave moth in South Wales

The Silky wave *Idaea dilutaria* is a Biodiversity Action Plan priority species in Britain, having Butterfly Conservation as the lead partner. Its British classification is "Rare", as it is currently known only from one locality in England (near Bristol in the south-west) and from two coastal areas of Wales; the Great Orme on the north coast and the Gower Peninsula in the south-west. According to the Joint Nature Conservation Committee, these sites are all steep south-facing areas of open calcareous grassland. These site features may indicate the need for a warm micro-climate in the more northern or oceanic parts of the moth's distribution. At its northern limit, in southern Sweden, it is confined to south-facing slopes, but it is fairly widespread in central and southern Europe. Old records suggest that it may have been previously more widespread in Britain, but it seems that these may have been based on misidentification in some cases.

Adrian Fowles, reporting to Invertebrate Link on behalf of the Countryside Council for Wales, writes about a search for larvae of *I. dilutaria* at known sites on the South Gower coast. According to his report, the larvae had not previously been found in the wild in Britain before, although breeders have successfully reared the moth from eggs laid in captivity. Following many hours of searching, three larvae



were eventually discovered in association with robust clumps of Common rockrose *Helianthemum nummularium*. This confirms previous suspicions that the larvae are probably dependent upon this foodplant in Britain, feeding on withered leaves. In captivity, the larvae will feed also on other plants such as knotgrass *Polygonum aviculare*, Pale persicaria *P. persicaria* and dandelion *Taraxacum officinale*.

Adrian adds that suitable habitat occurs where grazing pressure is very light and that this information will be used to guide future management of these important populations. As mentioned in ICN 38, a study of one of the Welsh populations has indicated a benefit from the "piecemeal" management of a nature reserve, in which hand cutting and burning of gorse produced a varied mosaic. This ranged from bare earth to low-growing gorse, amongst which the foodplant was present in clumps.



RESEARCH NOTES

Alien species: their success when liberated from natural enemies

The invasiveness of many species that have been introduced beyond their natural ranges is often attributed to a relative freedom from the natural enemies (competitors, predators, and parasites) that limit the success of their native populations. A newly assembled set of data has been presented in support of this view by research workers at two American universities: Kevin Lafferty and co-workers at Santa Barbara, California (Marine Science Institute) and Andrew Dobson at Princeton, New Jersey. A review of this work has been published by Keith Clay in the scientific journal *Nature* (Vol. 421, p 585, Feb. 6th 2003).

By analysing the parasite burdens of 26 introduced animal species, including some invertebrates, the two American groups have shown that, on average, native populations carried twice as many parasites as their introduced populations.

One of the invertebrates studied was the European Green Crab *Carcinus maenas*, as reported in an earlier paper by the Santa Barbara group [*Biological Invasions* (Vol. 3: 333-345, 2001.)] This species, a native of western Europe, from Tromsø in the north to Gibraltar in the south, has had a devastating effect on populations of marine



invertebrates on the Atlantic coast of the U.S.A. and is also causing serious damage on the Pacific coast. This is an economic, as well as an ecological problem, as it has seriously harmed commercial exploitation of crabs, mussels, oysters and clams.

The Santa Barbara group conducted a global assessment of the effect of parasitism and predation on the ecological performance of *C. maenas* populations, examining their biomass and average body size, together with the incidence of limb loss (a measure of attacks by predators). They sampled exotic populations of *C. maenas* in Tasmania, South Africa and the east and west coasts of the USA, comparing these with samples from six countries within the native European population. In the Europe populations, they found that the crab's body size and biomass were negatively associated with the prevalence of parasitic rhizocephalan barnacles (mainly *Sacculina carcini*), which castrate crabs. Parasites were generally less prevalent among the introduced populations, which showed a larger average body size and a greater overall biomass. On the other hand, limb loss was not significantly more frequent in the introduced populations, compared with their native counterparts.

The authors suggest that *C. maenas*, like various pest species in terrestrial habitats, owes some of its success to having escaped from natural parasites in the course of introduction to new regions. Opportunities for such escape can quite easily be envisaged, but the authors point out that an introduced species might just as easily bring its parasites with it, or that it might even acquire new parasites from its new habitat. They also suggest that marine invertebrates are especially likely to colonise new regions in the absence of their usual parasites, since they are likely to spread as free-floating larvae, which tend to be largely parasite-free. They add that, even if infected adults invade a new region, their parasites may not find suitable intermediate hosts or vectors. Furthermore, the initial densities of a founding population may be too low to maintain parasite transmission.

The group did some parallel work on a related European crab, *C. aestuarii*, which has become established in Japan. They found no parasites in the Japanese population, whereas the native population on the Mediterranean coast of France is reportedly commonly parasitised by trematodes, rhizocephalan barnacles, and entoniscid isopods. Similarly, they found that populations of a shore crab, *Hemigrapsus sanguineus*, were parasitised in their native range by rhizocephalans (6%) and trematode metacercariae (55%), whereas an introduced population on the eastern coast of North America showed only a very



small percentage of parasitism (by a larval nematode which also infected the introduced green crab). According to findings cited from the work of other authors, introduced specimens of *H. sanguineus* are often larger and more abundant than their native counterparts.



FUTURE UK MEETINGS

Buglife – The Invertebrate Conservation Trust

The new UK-based charity Buglife, the only organisation in Europe dedicated to the conservation of all kinds of invertebrates, is due to hold its second annual general meeting in Peterborough on 5th April 2003. Although only Company Members can vote at the meeting, all other invertebrate enthusiasts will be very welcome to attend. In addition to a short business session, a number of interesting presentations are planned. Details are not available at the time of writing, but will probably be posted on Buglife's website: www.buglife.org.uk and can also be obtained from the Secretary: David Lonsdale (yes, also the *ICN* editor for AES!), tel. 01420 83742.

The Wildlife Trusts: Beds, Cambs, Northants & Peterborough

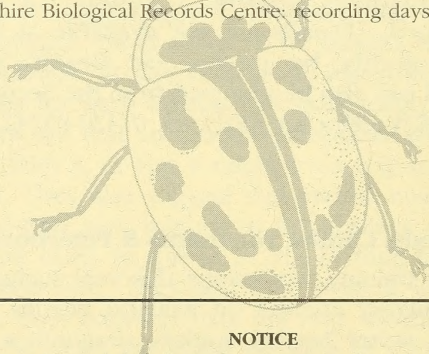
The Trusts' invertebrate training workshops this year include butterfly monitoring, and introductory courses on wetland beetles, deadwood (flower-visiting) beetles, water beetles, spiders, dragonflies, hoverflies, bumblebees, ants, caddisflies, and water bugs. All workshops cost £20, and details can be obtained from Vera Herman, tel. 01604 405285, e-mail vherman@northwt.cix.co.uk

Worcestershire Biological Records Centre: recording days

These events, which have a strong invertebrate bias, are scheduled for 31st May, 5th July and 9th August. For details of sites and timing, please contact Geoff Trevis, tel. 01905 774952 (evenings or weekends).

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NOTICE

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